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MEMOIRS

OF THE

MUSEUM OF COMPARATIVE ZOÖLOGY

AT

HARVARD COLLEGE.

VOL. XXVIII.

PLATES.

III.

CAMBRIDGE, U.S.A.
PRINTED FOR THE MUSEUM.
1903.

Reefs. — Agassiz. III. Plates 200-236.

MEMOIRS

OF THE

MUSEUM OF COMPARATIVE ZOÖLOGY

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CONTENTS.

REPORTS ON THE SCIENTIFIC RESULTS OF THE EXPEDITION TO THE TROPICAL PACIFIC, in charge of ALEXANDER AGASSIZ, by the U. S. Fish Commission Steamer "Albatross," from August, 1899, to March, 1900, Commander JEFFERSON F. MOSER, U. S. N., Commanding. IV. THE CORAL REEFS OF THE TROPICAL PACIFIC. By ALEXANDER AGASSIZ. pp. xxxiii., 410. 238 Plates. February, 1903.

ONE VOLUME TEXT. THREE VOLUMES PLATES.

Memoirs of the Museum of Comparative Zoölogy
AT HARVARD COLLEGE.
VOL. XXVIII.

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IV.

THE CORAL REEFS OF THE TROPICAL PACIFIC.

By ALEXANDER AGASSIZ.

III. — PLATES 200 TO 236.

CHARTS AND TWO COLORED PLATES.

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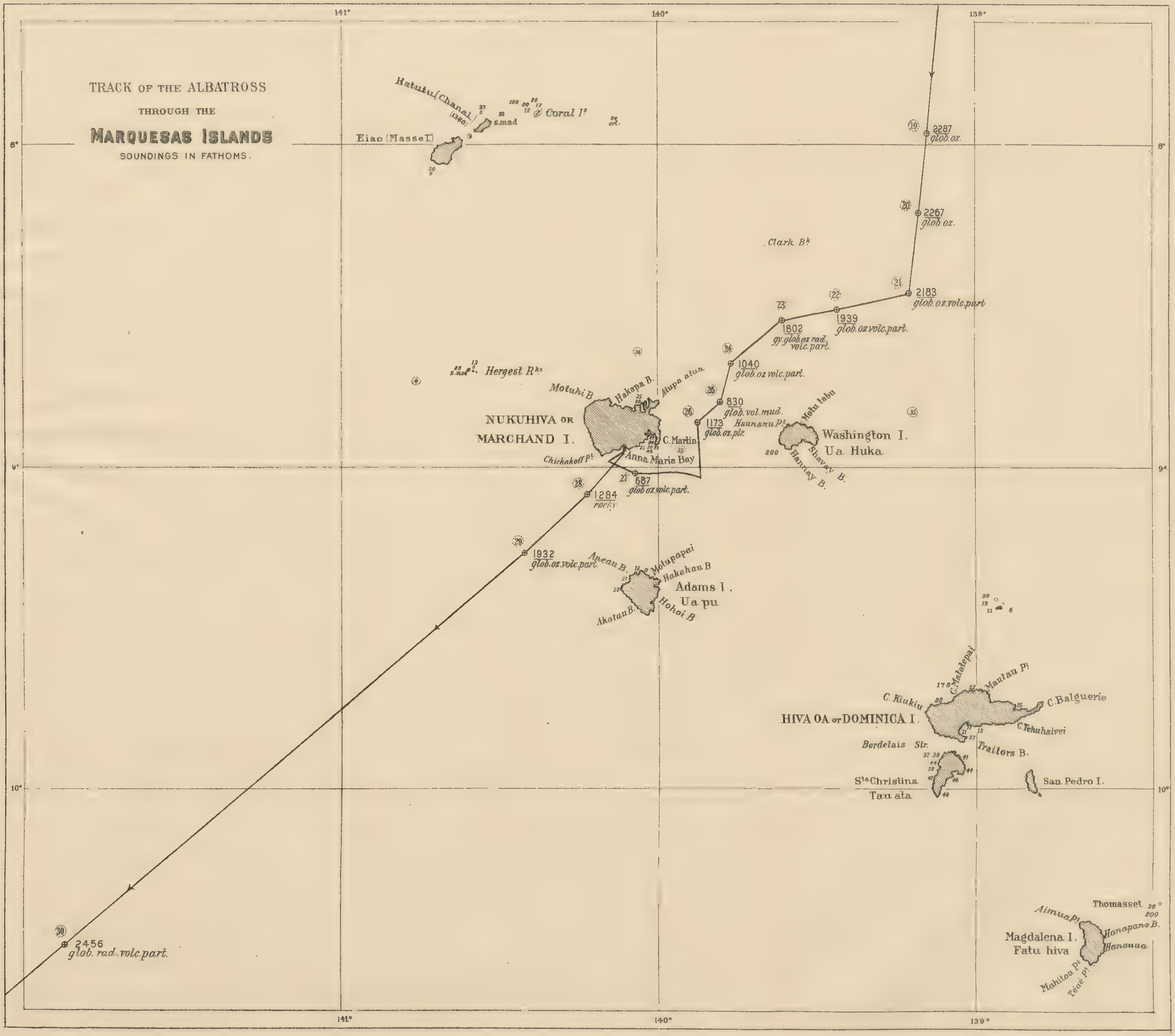
CAMBRIDGE, U. S. A.:
Printed for the Museum.
FEBRUARY, 1903.

PLATE 200.

PLATE **200**.

Track of the " Albatross " through the Marquesas, reduced from Admiralty Chart 1640.



TRACK OF THE ALBATROSS
THROUGH THE
MARQUESAS ISLANDS
SOUNDINGS IN FATHOMS.

PLATE **201**.

PLATE 201.

Track of the "Albatross" through the Paumotus and Society Islands.

TRACK OF ALBATROSS
IN THE
PAUMOTU ARCHIPELAGO
AND
SOCIETY ISLANDS
SOUNDINGS IN FATHOMS.

PLATE 202.

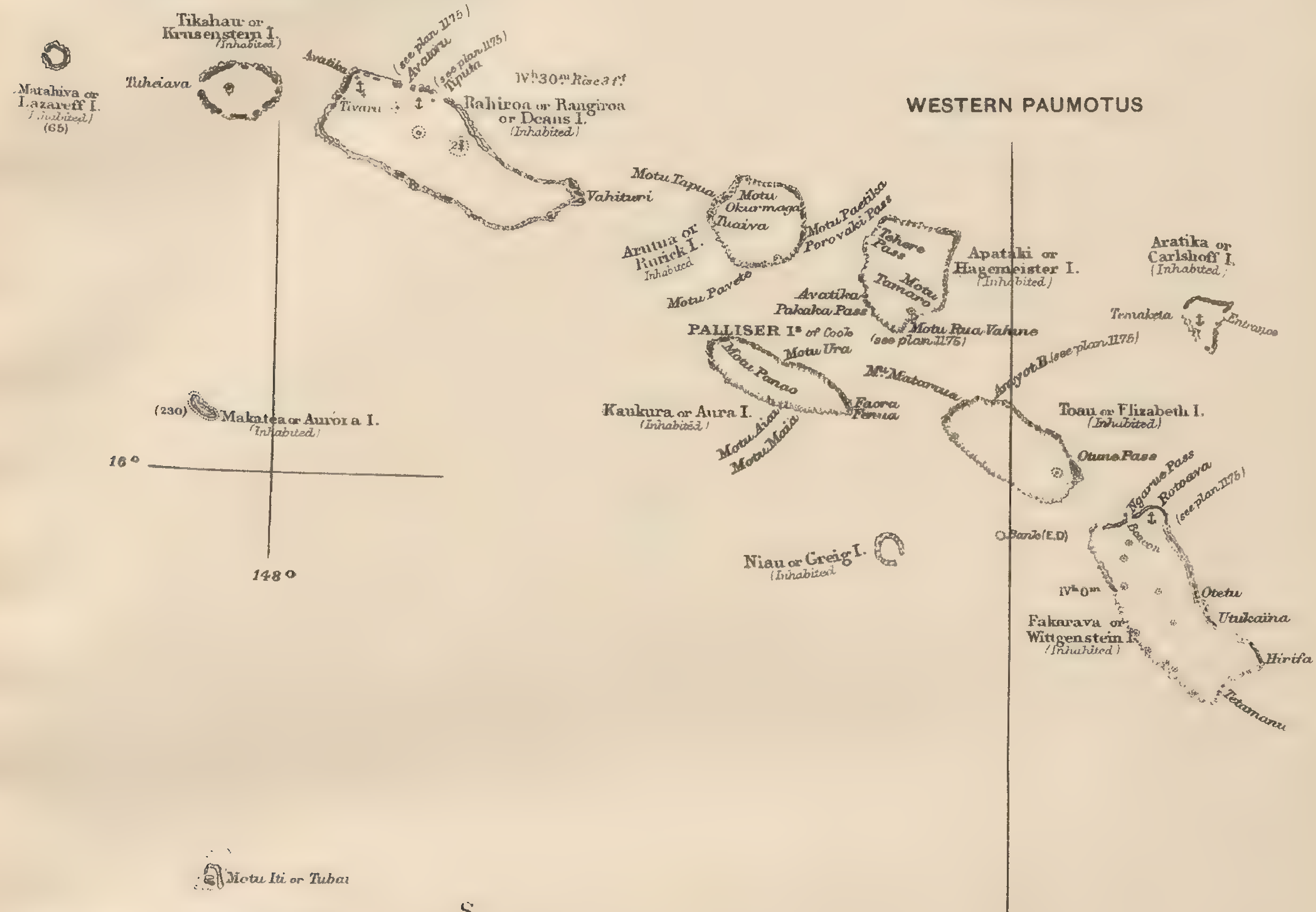

WESTERN PAUMOTUS
Matahiva or Lazareff I. (Inhabited) (65)
Tikahau or Krusenstern I. (Inhabited)
Tuheiava
Avatika
(see plan 1175) Avatoru
(see plan 1175) Tiputa
IVh 30m Rise 3 ft
Tivaru
Rahiroa or Rangiroa or Deans I. (Inhabited)
Vahituri
Motu Tapua
Motu Okurmaga
Tuaiva
Arutua or Rurick I. Inhabited
Motu Paetika
Porovaki Pass
Motu Paveto
Tehere Pass
Motu Tamaro
Apataki or Hagemeister I. (Inhabited)
Aratika or Carlshoff I. (Inhabited)
Temaketa
Entrance
Avatika
Pakaka Pass
Motu Rua Vahine (see plan 1175)
PALLISER Is of Cook
Motu Ura
Motu Panao
Mt. Mataraua
Arayot B. (see plan 1175)
Kaukura or Aura I. (Inhabited)
Faora Fenua
Motu Aiai
Motu Maia
Toau or Elizabeth I. (Inhabited)
Otuma Pass
Ngarue Pass
Rotoava
(see plan 1175)
Beacon
Bank (E.D)
Niau or Greig I. (Inhabited)
IVh 0m
Otetu
Utukaina
Fakarava or Wittgenstein Is. (Inhabited)
Hirifa
Tetamanu
(230) Makatea or Aurora I. (Inhabited)
16°
148°
146°
Tuuhora Vil.
Anaa or Chain I. (Inhabited)
Motu Iti or Tubai
SOCIETY ISLANDS (Inhabited)
Auera I.
Tuanaé I
Marua or Maupiti (800)
Teavamu Hr. (see plan 1107)
Bora Bora (2379)
Motu Piti Aau
Tupua
Tahaa or Otaha 1986
Tautu I.
Hamene B.
Hurepiti B.
Teavarua or Uturoa Hr. (see plan 526)
Fare Hr. (see plan 526)
Huaheine Nui (2331)
Farerea Pass
Rautoanui Pass
Hotopuu
P. Bourayne
Huaheine Iti (1497)
Tetoroa B.
Raiatea or Uhetea (3389)
Punaeroa Pass
Putete Pt.
Nao Nao Pass
Tetiaroa (low islets)
1525 gy. oz
Papetoai B.
Paopao B.
Murea or Eimeo (3975)
29
Paroa Pt.
Matavai B.
Motu-uta I.
Papiete Hr.
Venus Pt. Lt. F. vis. 15 m.
44
Onoheha Pass
Artemise Bk.
Motu Puuru
Terufaaroa
7321
Punaauia
Tatatua
4340
Taiarapu Penla.
TAHITI OR OTAHEITE (see plan 1382)
Mapeti I.
Teputo Pass
Hamelius
Tubuai Manu (820) Maia-iti or Saunders I. (Inhabited)
152°
18°
150°

PLATE **203**.

PLATE **203**.

The eastern Paumotus as far as Pinaki, including the Duke of Gloucester Islands, from A. Chart 767.

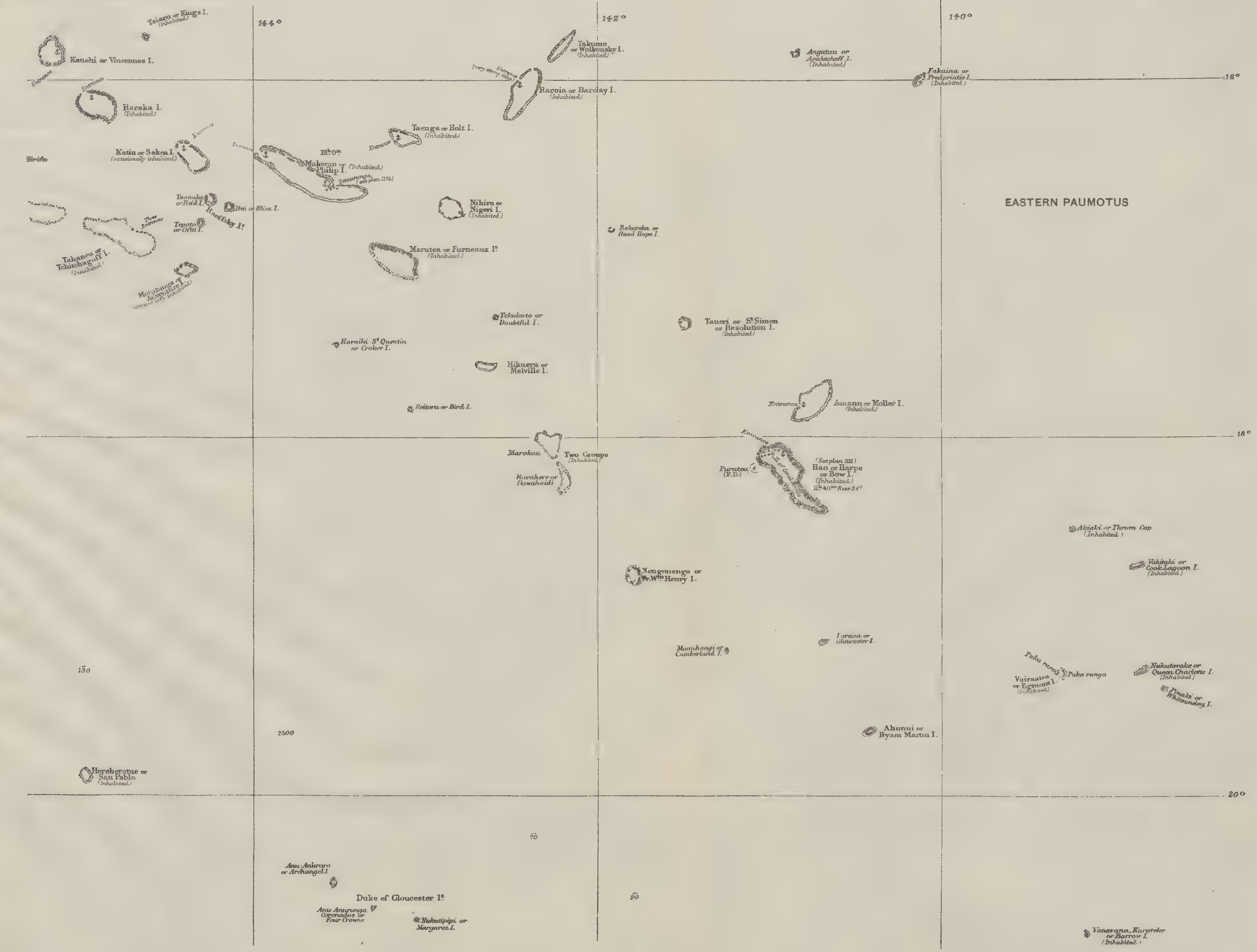
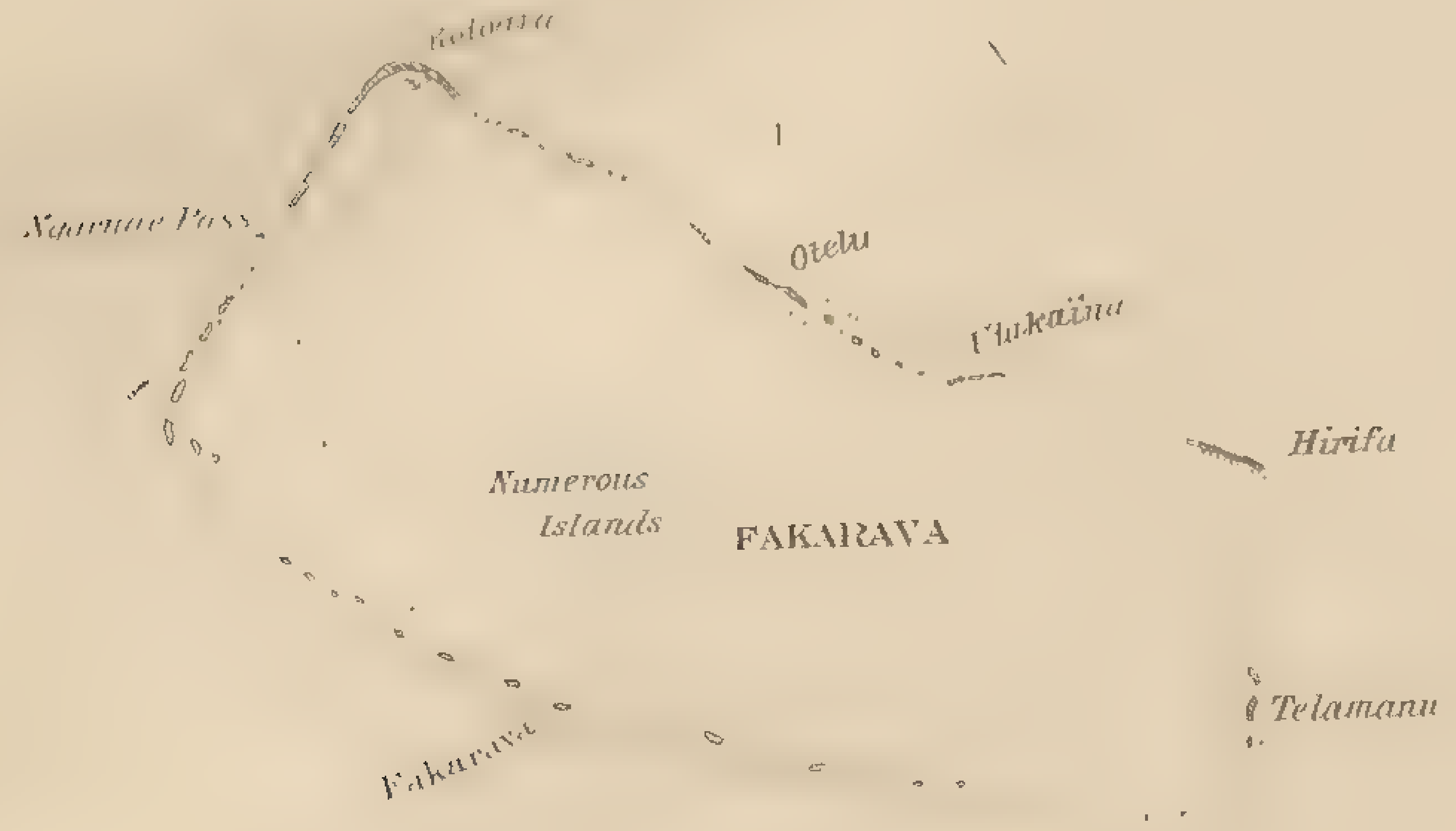

Taiaro or Kings I.
(Inhabited.)
Kauehi or Vincennes I.
Entrance
144°
142°
140°
Takume or Wolkonsky I.
(Inhabited.)
Angatau or Araktcheff I.
(Inhabited.)
Fakaina or Predpriatie I.
(Inhabited.)
16°
(very strong tides) Entrance
Raroia or Barclay I.
(Inhabited.)
Raraka I.
(Inhabited.)
Taenga or Holt I.
(Inhabited.)
Katiu or Saken I.
(occasionally inhabited.)
Tirifa
III.h 0m
Makemo or Philip I. (Inhabited.)
Tetaurunga (see plan 1175)
Tuanaka or Reid I.
Hiti or Eliza I.
Raeffsky Is.
Three Entrances
Tepoto or Otiti I.
Nihiru or Nigeri I.
(Inhabited.)
EASTERN PAUMOTUS
Rekareka or Good Hope I.
Tahanea or Tchitchagoff I.
(Inhabited.)
Motutunga or Adventure I.
(occasionally inhabited.)
Marutea or Furneaux Is.
(Inhabited.)
Tekokoto or Doubtful I.
Tauere or St Simon or Resolution I.
(Inhabited.)
Haraiki St Quentin or Croker I.
Hikueru or Melville I.
Reitoru or Bird I.
Entrance
Amanu or Moller I.
(Inhabited.)
18°
Entrance
Marokau
Two Groups
(Inhabited.)
Ravahere or Dawahaidi
(See plan 1111)
Puratea (P.D.)
4
Hao or Harpe or Bow I.
(Inhabited.)
II.h 40m Rise 3 ft
Akiaki or Thrum Cap
(Inhabited.)
Vahitahi or Cook Lagoon I.
(Inhabited.)
Nengonengo or Wm Henry I.
Manuhangi or Cumberland I.
Tarava or Gloucester I.
Puka raro
Puka runga
Vairaatea or Egmont I.
(Inhabited.)
Nukutavake or Queen Charlotte I.
(Inhabited.)
Pinaki or Whitsunday I.
130
2500
Ahunui or Byam Martin I.
Hereheretue or San Pablo
(Inhabited.)
20°
70
Anu-Anuraro or Archangel I.
Duke of Gloucester Is.
Anu-Anurunga Coronados or Four Crowns
Nukutipipi or Margaret I.
90
Vanavana, Kurateke or Barrow I.
(Inhabited.)

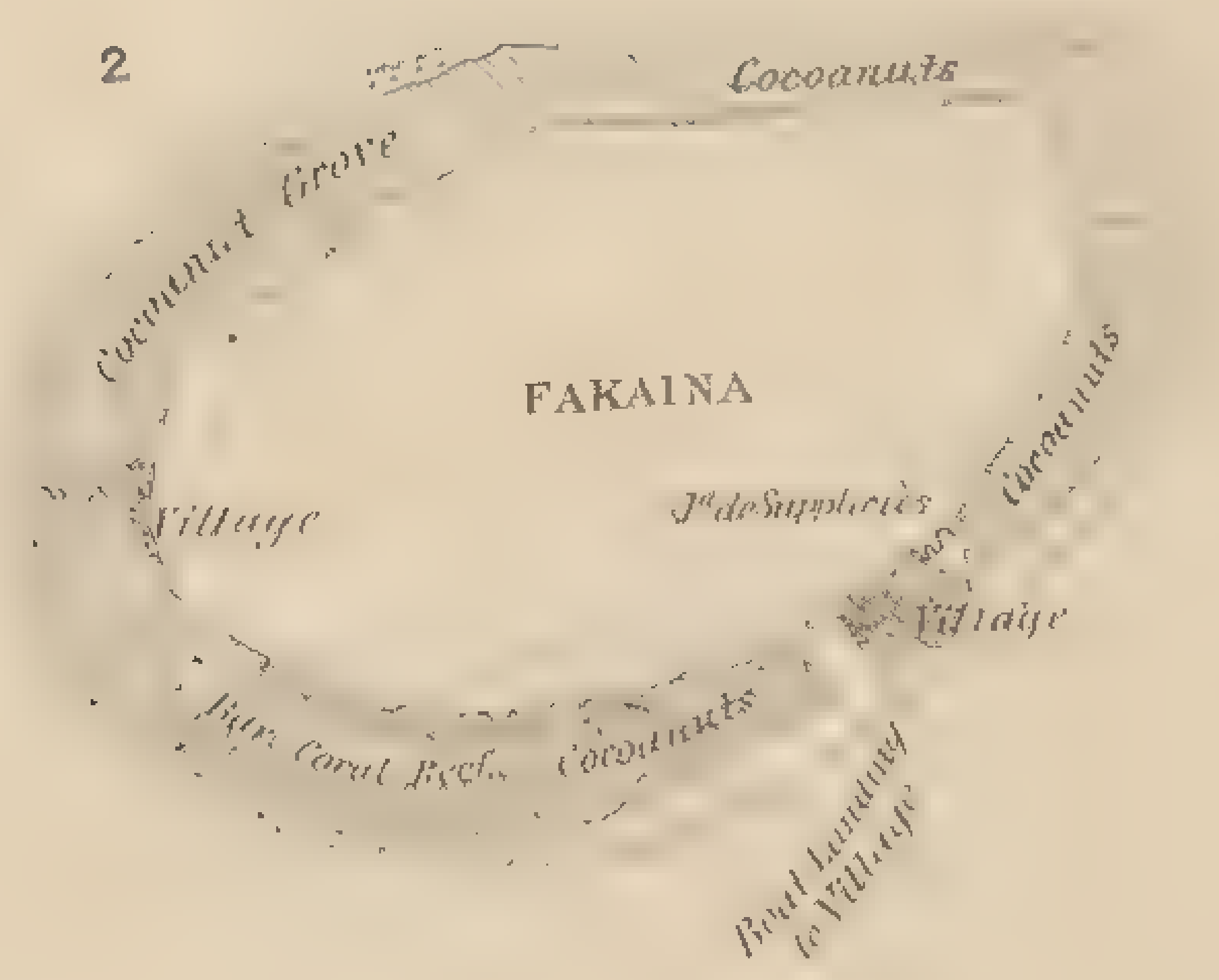
PLATE 204.

PLATE 204.

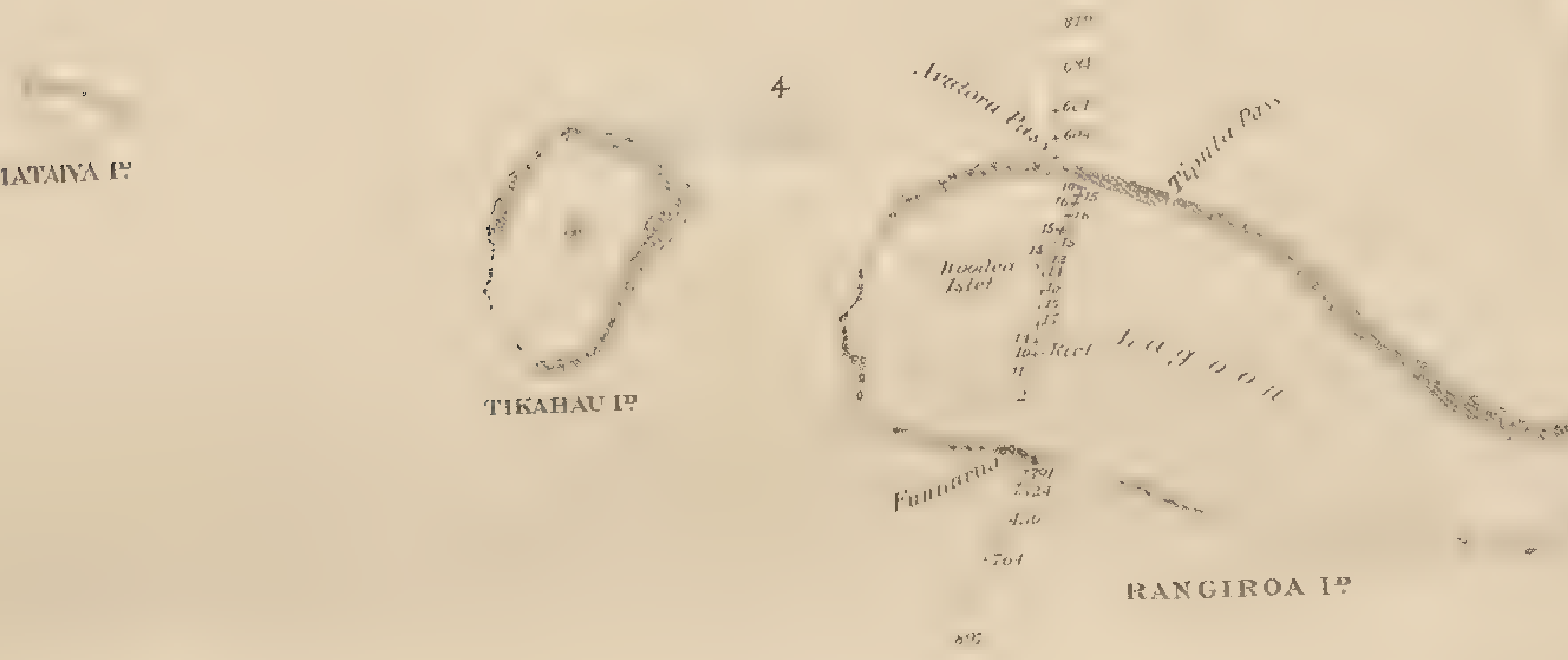
THE PAUMOTUS.

1. Fakarava, from A. Chart 767, and corrected by officers of the "Albatross," scale twelve miles to the inch.
2. Fakaina, from a sketch by Captain Garnier, scale three miles to the inch.
3. Tiputa Pass, Rangiroa, from H. O. Chart 75, scale three fourths of a mile to the inch.
4. Rangiroa, Tikahau, and Matahiva, from H. O. Chart 75, and corrections by officers of the "Albatross," scale twenty miles to the inch.
5. Strait between Marokau and Ravahere, from H. O. Chart 79, scale nine miles to the inch.
6. Northeast pass into Makemo, from surveys by officers of the "Albatross," scale one third of a mile to the inch.
7. Northwest face of Fakarava, from A. Chart 1175, scale two miles to the inch.

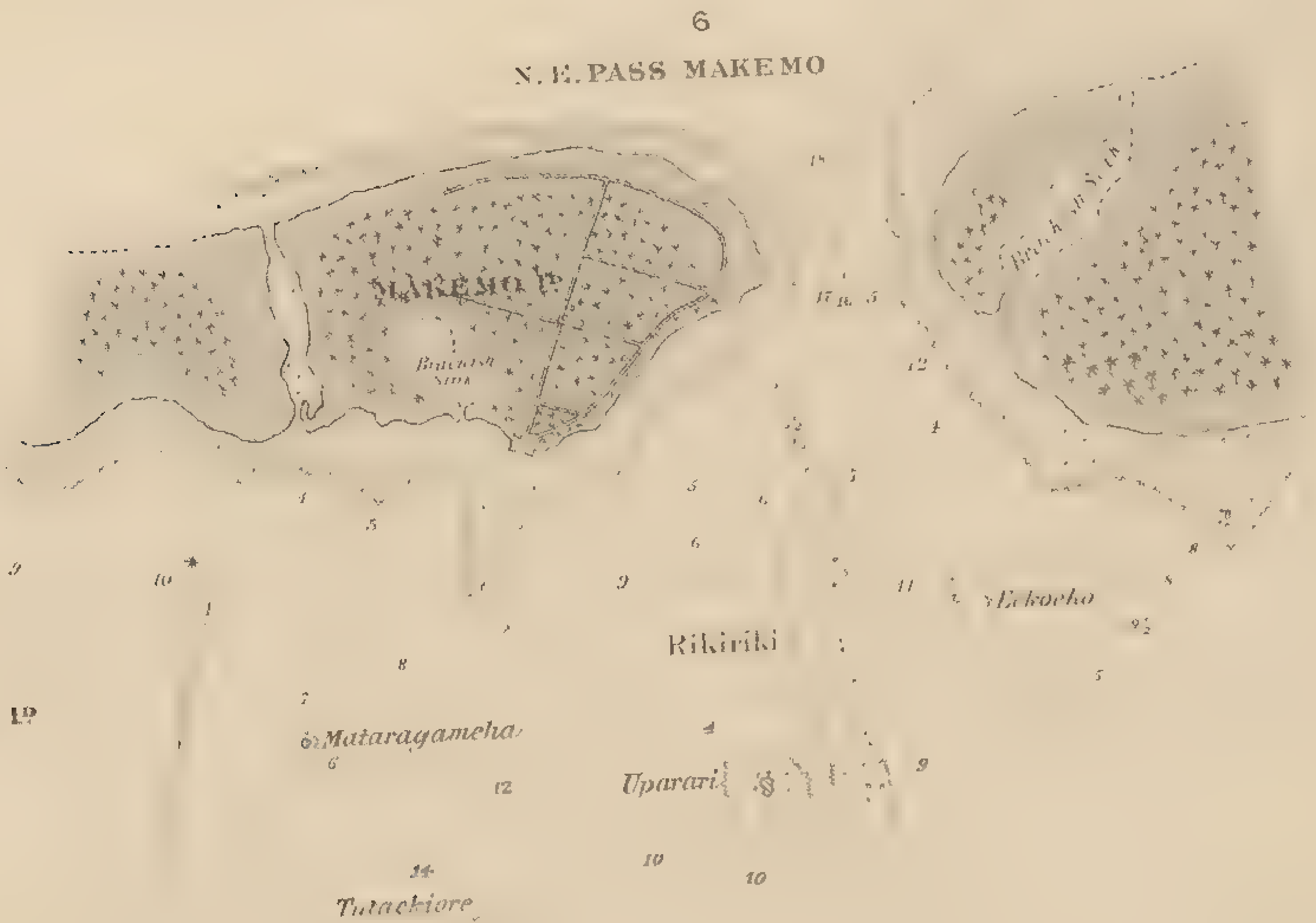

1
Rotoava
Naurune Pass
Otelu
Ulukaïna
Hirifa
Numerous Islands
FAKARAVA
Telamanu
Fakarava


2
Cocoanuts
Cocoanut Grove
FAKAINA
Village
Jᵈ de Supplices
Cocoanuts
Village
Bar. Coral Reefs
Cocoanuts
Boat Landing to Village

3
TIPUTA PASS


MATAIVA Iº
4
TIKAHAU Iº
Avatoru Pass
Tiputa Pass
Wooded Islet
Reef
Lagoon
Fanuarua
RANGIROA Iº

MAROKAU Iº
5
Lagoon
RAVAHERE Iº


6
N.E. PASS MAKEMO
MAKEMO Iº
Brackish Stm
Beach of Sand
Rikiriki
Eckocho
Mataragameha
Uparari
Tatackiore

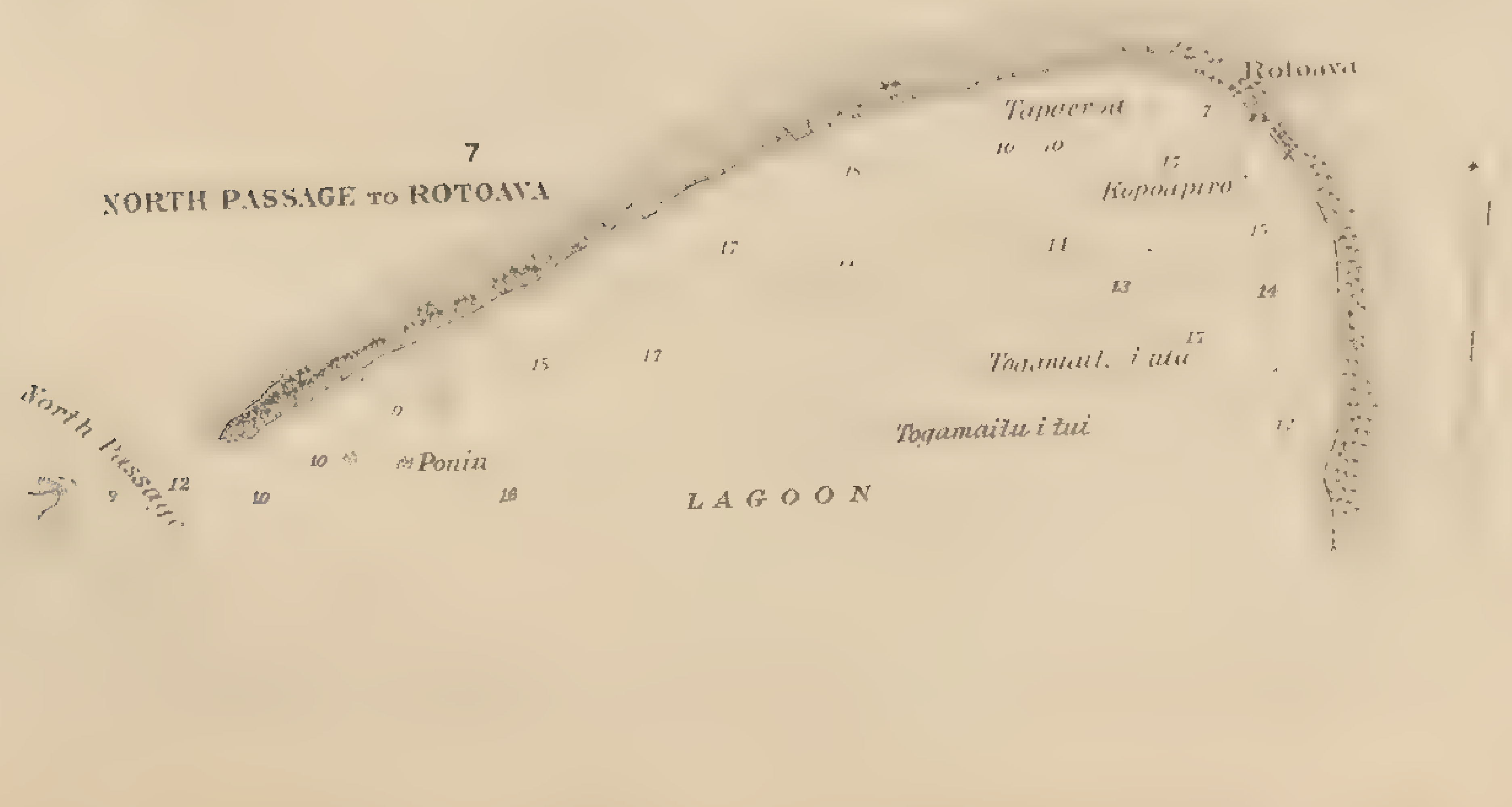

7
NORTH PASSAGE to ROTOAVA
Rotoava
Tapeeraa
Kopoapuro
Togamaitu i uta
Togamaitu i tai
Ponin
North Passage
LAGOON

PLATE **205**.

PLATE 205.

1. Makatea, from H. O. Chart 83, scale two miles to the inch.
2. Hao, from A. Chart 1111, scale six miles to the inch.
3. Avatoru Pass, Rangiroa, from H. O. Chart 960, scale two miles to the inch.
4. Takume, from H. O. Chart 83, scale three miles to the inch.

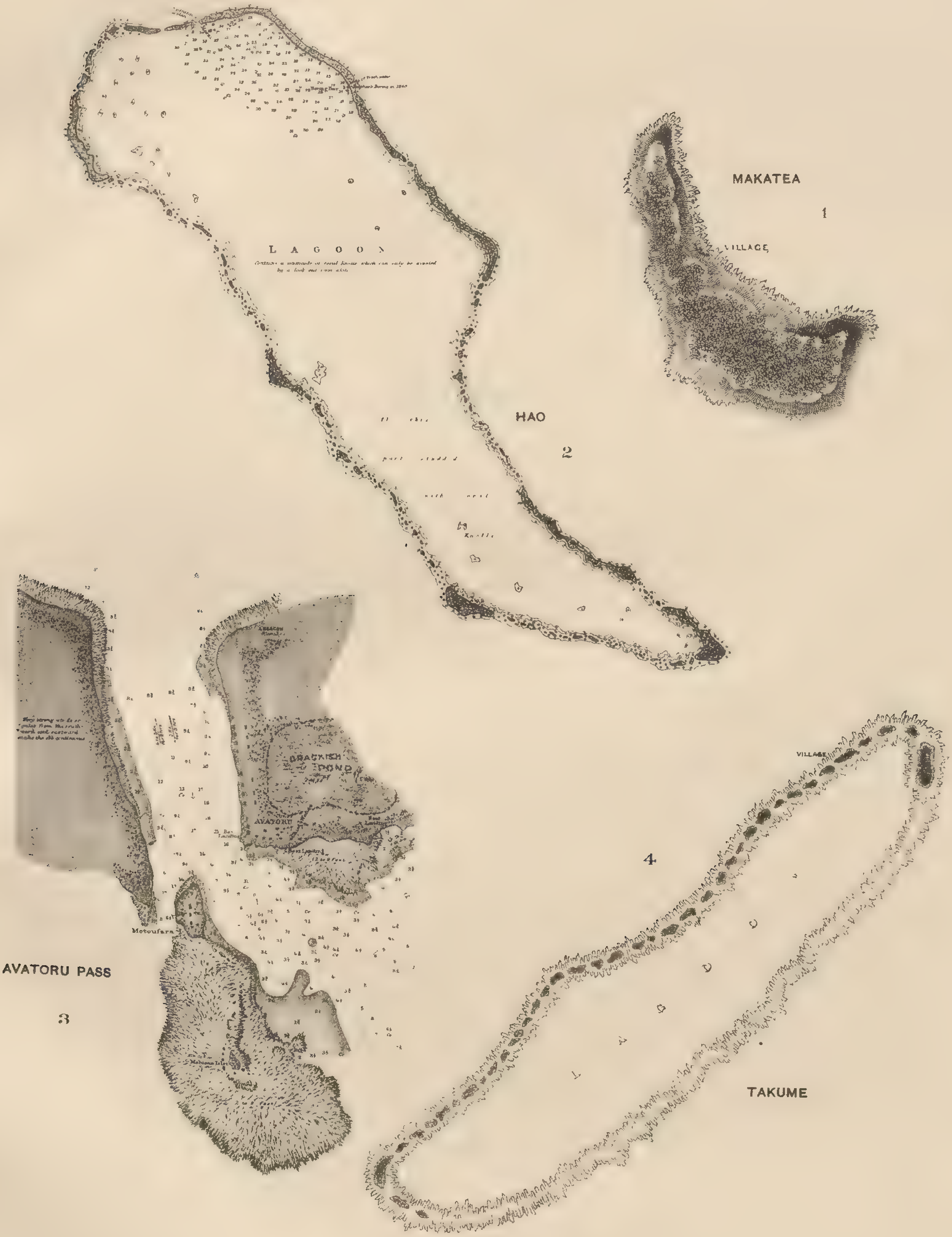

MAKATEA
1
VILLAGE
LAGOON
HAO
2
AVATORU PASS
3
BRACKISH POND
AVATORU
Motoufara
4
VILLAGE
TAKUME

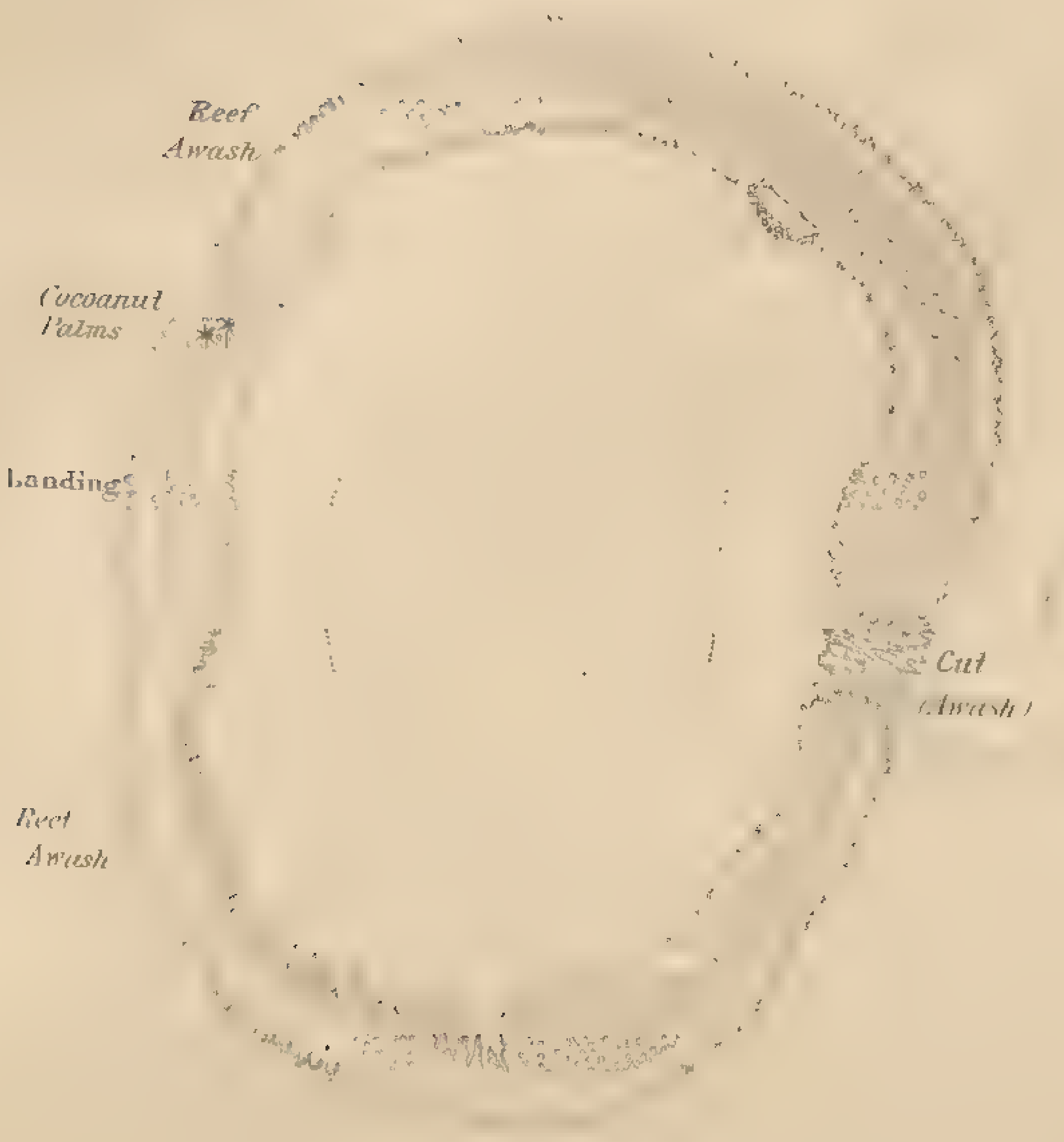
PLATE 206.

PLATE 206.

1. Anu-Anurunga, scale one mile to the inch.
2. Anu-Anuraro, scale one mile to the inch.
3. Pinaki, scale one mile to the inch.
4. Nukutipipi, scale one fourth of a mile to the inch.

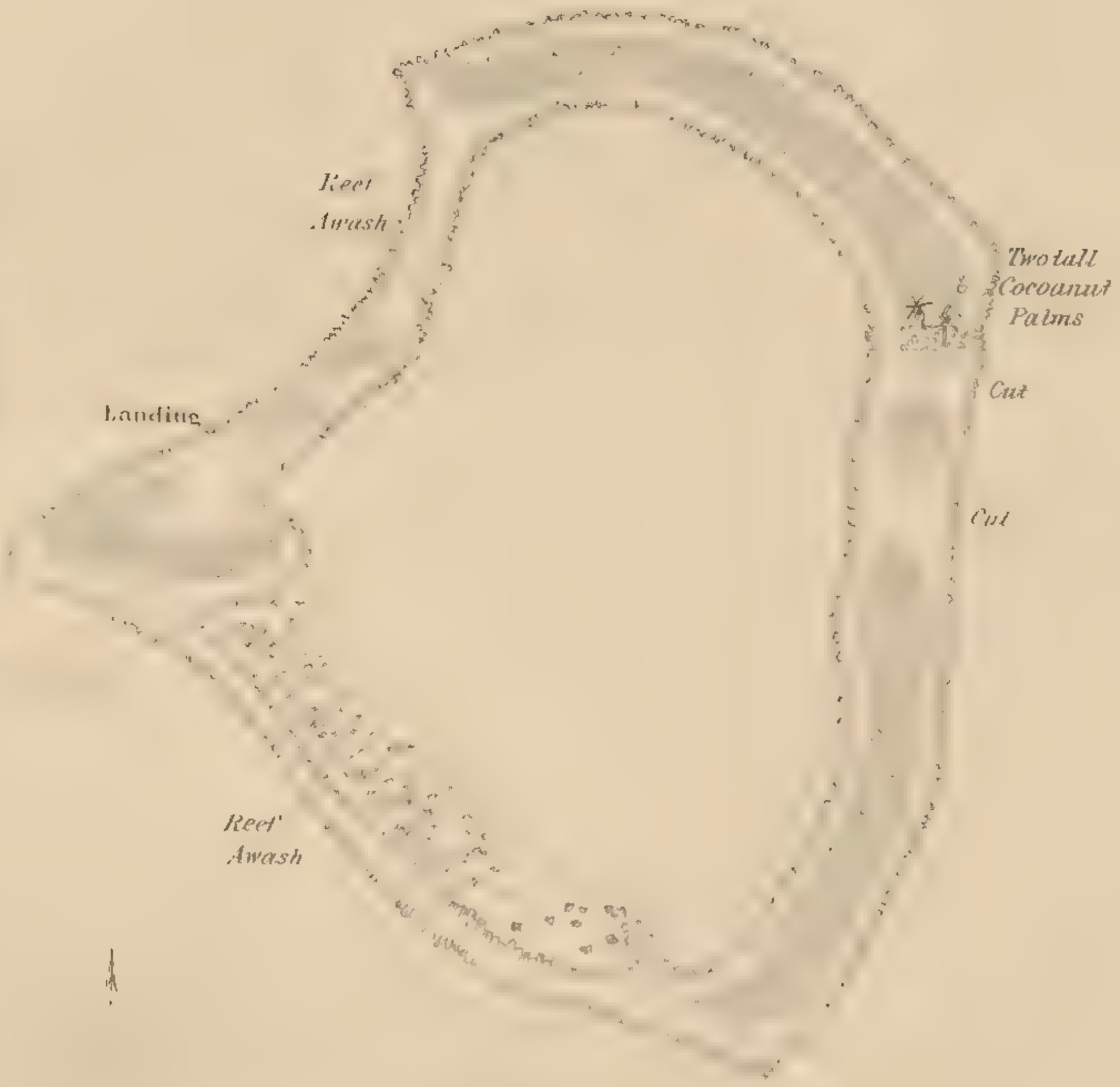
1, 2, 4, from sketches by H. C. Fassett; 3, from a sketch by C. H. Townsend.

1



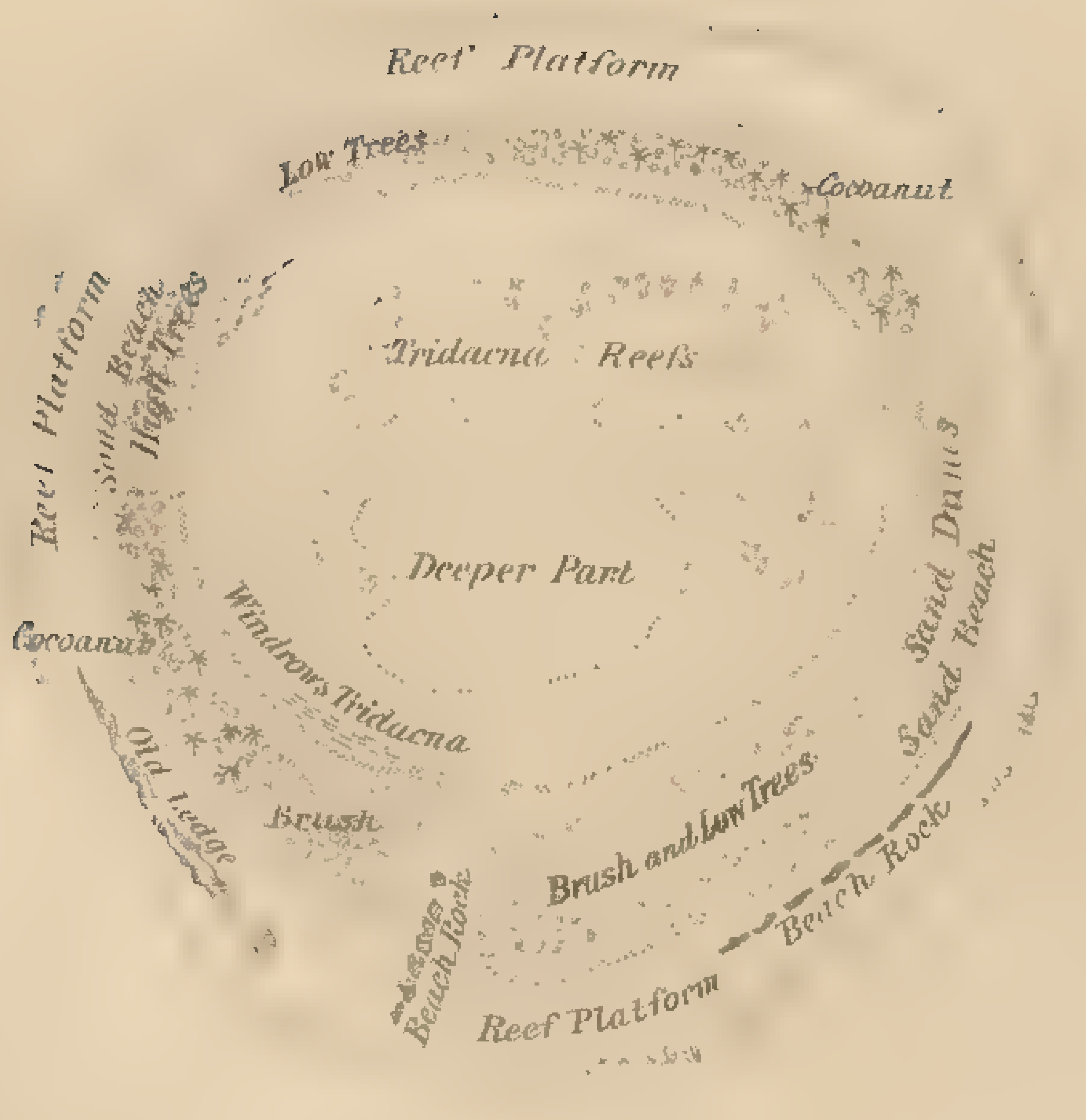
ANU-ANURUNGA

2



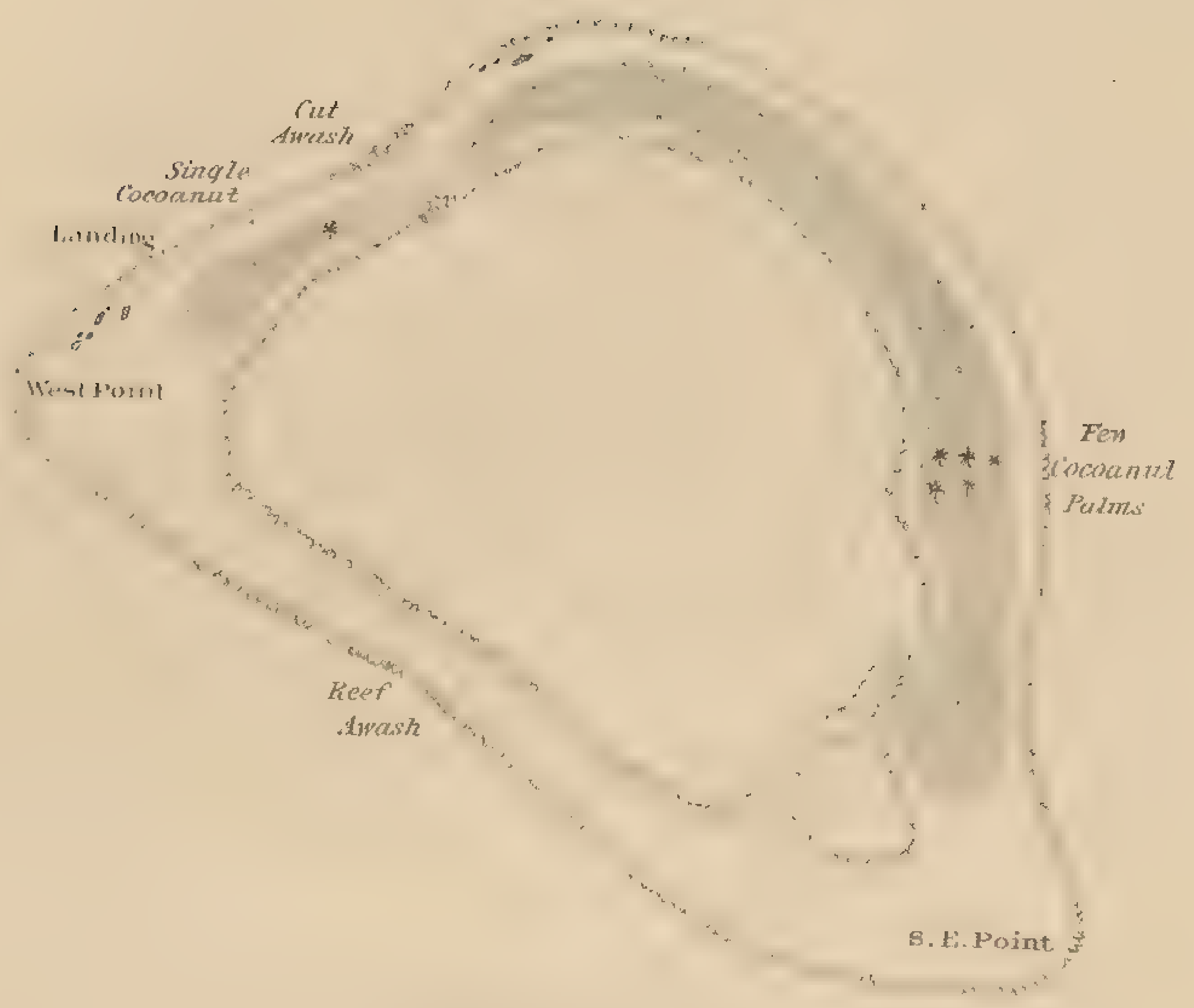
ANU-ANURARO

3



PINAKI

4



NUKUTIPIPI

Plate **207**.

PLATE **207**.

The Gambier Islands, from A. Chart 1112, scale two miles to the inch.

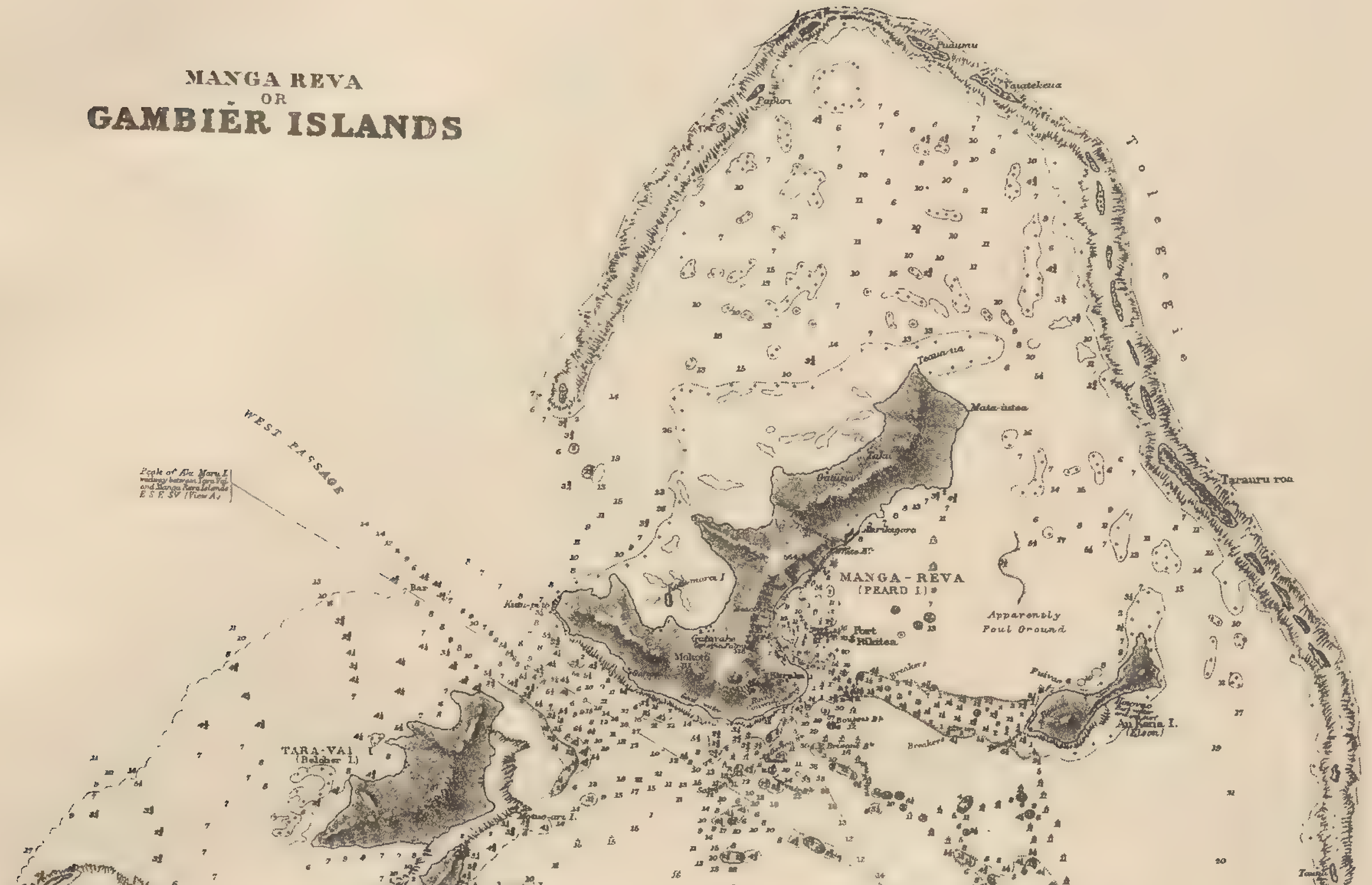

MANGA REVA
OR
GAMBIER ISLANDS
Puaumu
Vaiatekeua
Papiori
Toleogie
Teauaua
Mata-iutea
Zaku
Oatitua
Tarauru roa
Aarikagora
MANGA-REVA
(PEARD I.)
Apparently
Foul Ground
Port
Rikitea
Mokoto
Kamara I.
Kuku-rito
Bar
WEST PASSAGE
Peak of Ak. Maru I. midway between Tara-Vai and Manga Reva Islands E.S.E. SV (View A)
Puivao
Breakers
Au Kena I.
(Elson)
TARA-VAI I.
(Belcher I.)
Agu-kamtai I.
Tepu-rail
Tokorua
Tauna
Mokiro I.
AKA-MARU I.
(Wainwright)
Moka-pu I.
Totauga
Motu-teiko
Makaroa I. (878)
(Marsh I.)
Manui I.
Kamaka I. (877)
(Collie I.)
Much discoloured indicating shoal water
SOUTH WEST PASSAGE
SOUTH EAST PASSAGE

PLATE 208.

PLATE 208.

1. Taiarapu Peninsula (Tahiti), with its surrounding fringing reefs.
2. Fringing reefs of the east side of Tahiti, from Taravao Bay to Artémise Bank.
3. The fringing and barrier reefs of the south shore of Tahiti, from Popote Bay to the Isthmus of Taravao.
4. The fringing and barrier reefs of the southwest part of Tahiti, from Paea to West Ava-iti.
5. The fringing and barrier reefs from Papieté Pass to north of Acna.
6. Murea, with its fringing and barrier reefs. All figures reduced from A. Chart 1382, scale three miles to the inch.

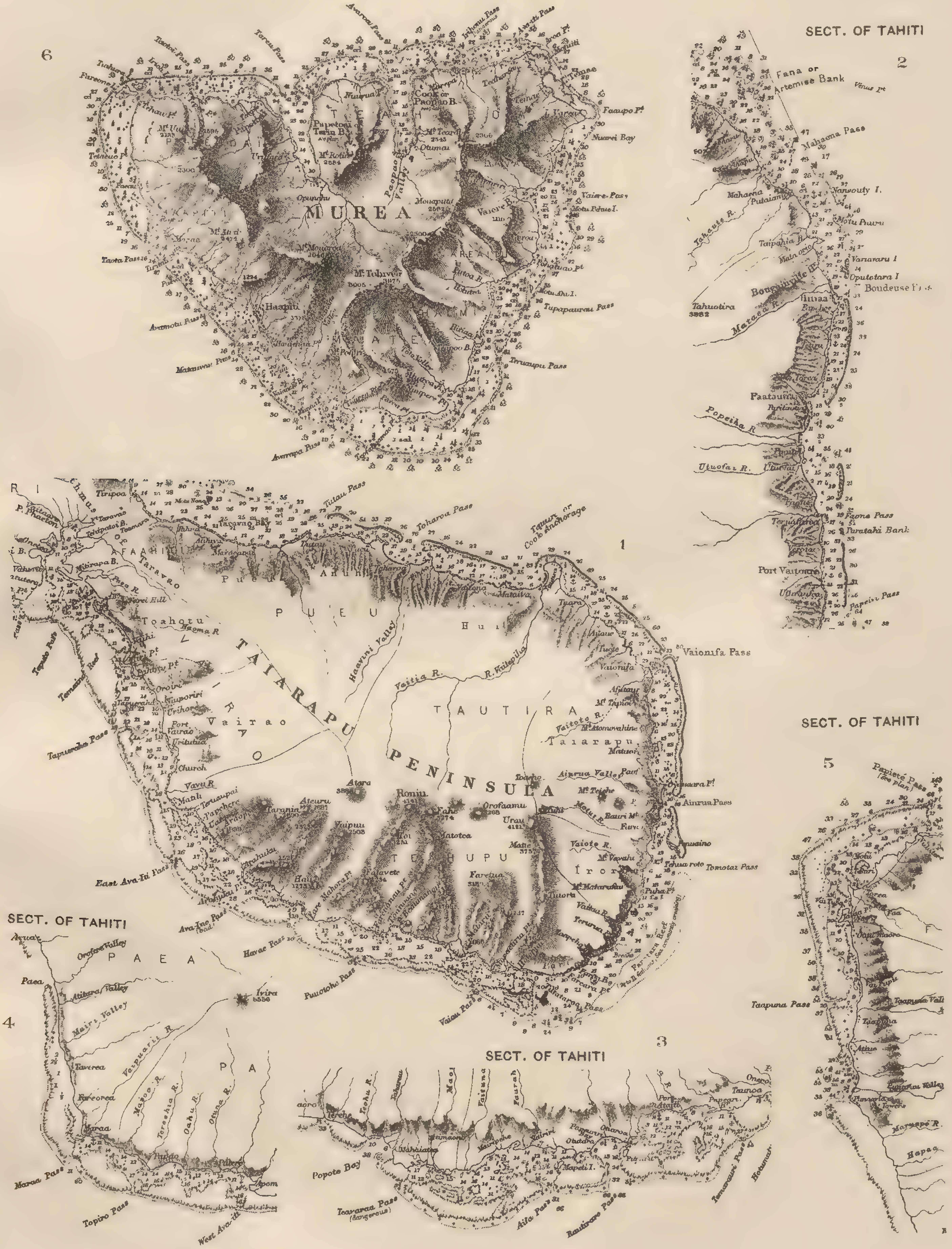
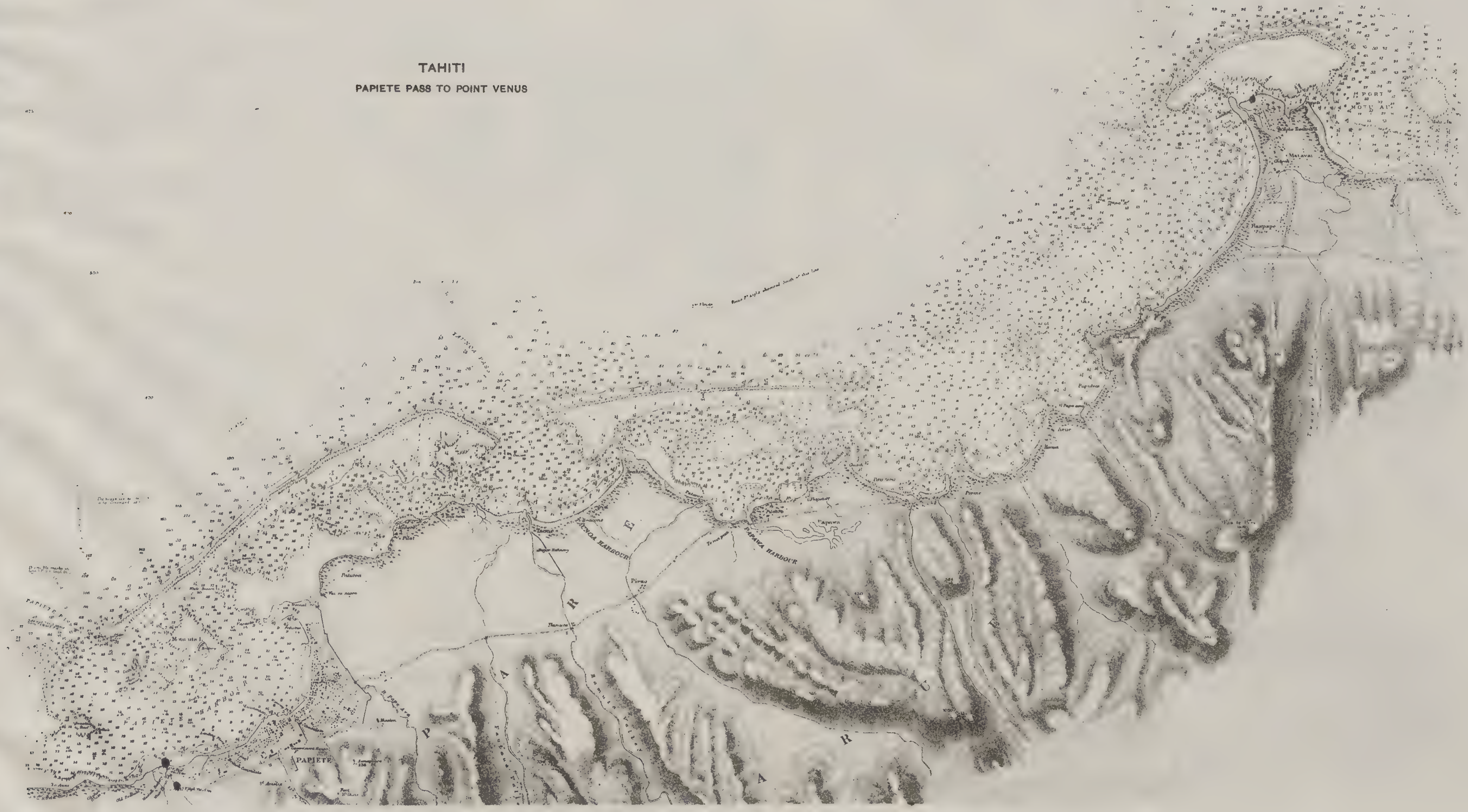

6
MUREA
SECT. OF TAHITI
2
1
TAIARAPU PENINSULA
PUEU
TAUTIRA
VAIRAO
TEAHUPU
SECT. OF TAHITI
5
SECT. OF TAHITI
4
PAEA
SECT. OF TAHITI
3

PLATE 209.

PLATE 209.

Northwest shore of Tahiti, from Point Venus to Papieté Pass, from A. Chart 1382, scale two miles to the inch.



TAHITI

PAPIETE PASS TO POINT VENUS

PLATE **210**.

Plate 210.

1. Huaheine, scale two miles to the inch.
2. Raiatea and Tahaa, scale three miles to the inch.
3. Bora Bora, scale two miles to the inch.
4. Maupiti, scale three miles to the inch.

1–4 from A. Chart 1060.

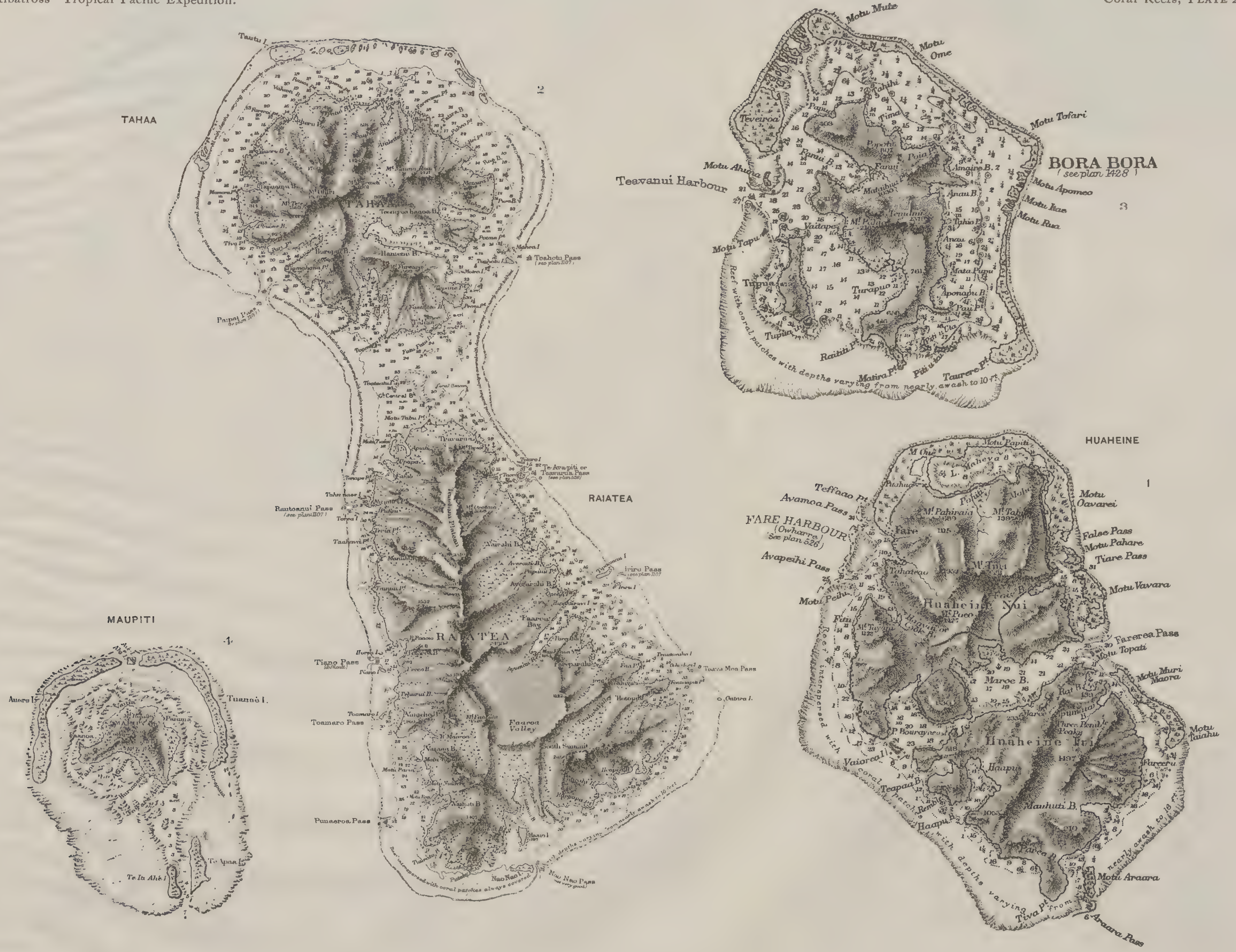

TAHAA
2
Tautu I.
Toahotu Pass (see plan 1107)
Papai Pass
RAIATEA
Te Avapiti or Teavarua Pass
Iriru Pass
Rautoanui Pass (see plan 1107)
Tiano Pass
Toamaro Pass
Faaroa Bay
Faaroa Valley
South Summit
Teava Moa Pass
Punaeroa Pass
Nao Nao I.
Nao Nao Pass
MAUPITI
4
Auera I.
Tuanoé I.
Te Apaa I.
Te Ia Ahi I.
BORA BORA (see plan 1428)
3
Motu Mute
Motu Ome
Motu Tofari
Teavanui Harbour
Motu Ahuna
Motu Apomeo
Motu Itae
Motu Rua
Motu Topu
Teveiroa
Pahia
Vaitape
Tupua
Raititi Pt.
Matira Pt.
Taurere Pt.
Reef with coral patches with depths varying from nearly awash to 10 ft.
HUAHEINE
1
Motu Papiti
Teffaao Pt.
Avamoa Pass
FARE HARBOUR (Owharre) (See plan 526)
Avapeihi Pass
Motu Oavarei
False Pass
Motu Pahare
Tiare Pass
Motu Vavara
Huaheine Nui
Farerea Pass
Motu Topati
Motu Muri Maora
Maroe B.
Huaheine Iti
Motu Ruahu
Haapu
Mauhuti B.
Motu Araara
Tiva Pt.
Araara Pass

Plate **211**.

PLATE **211**.

Track of "Albatross" from the Society Islands to Niue.

TRACK OF ALBATROSS
IN THE
SOCIETY ISLANDS TO COOK ARCHIPELAGO
AND
NIUE.
SOUNDINGS IN FATHOMS

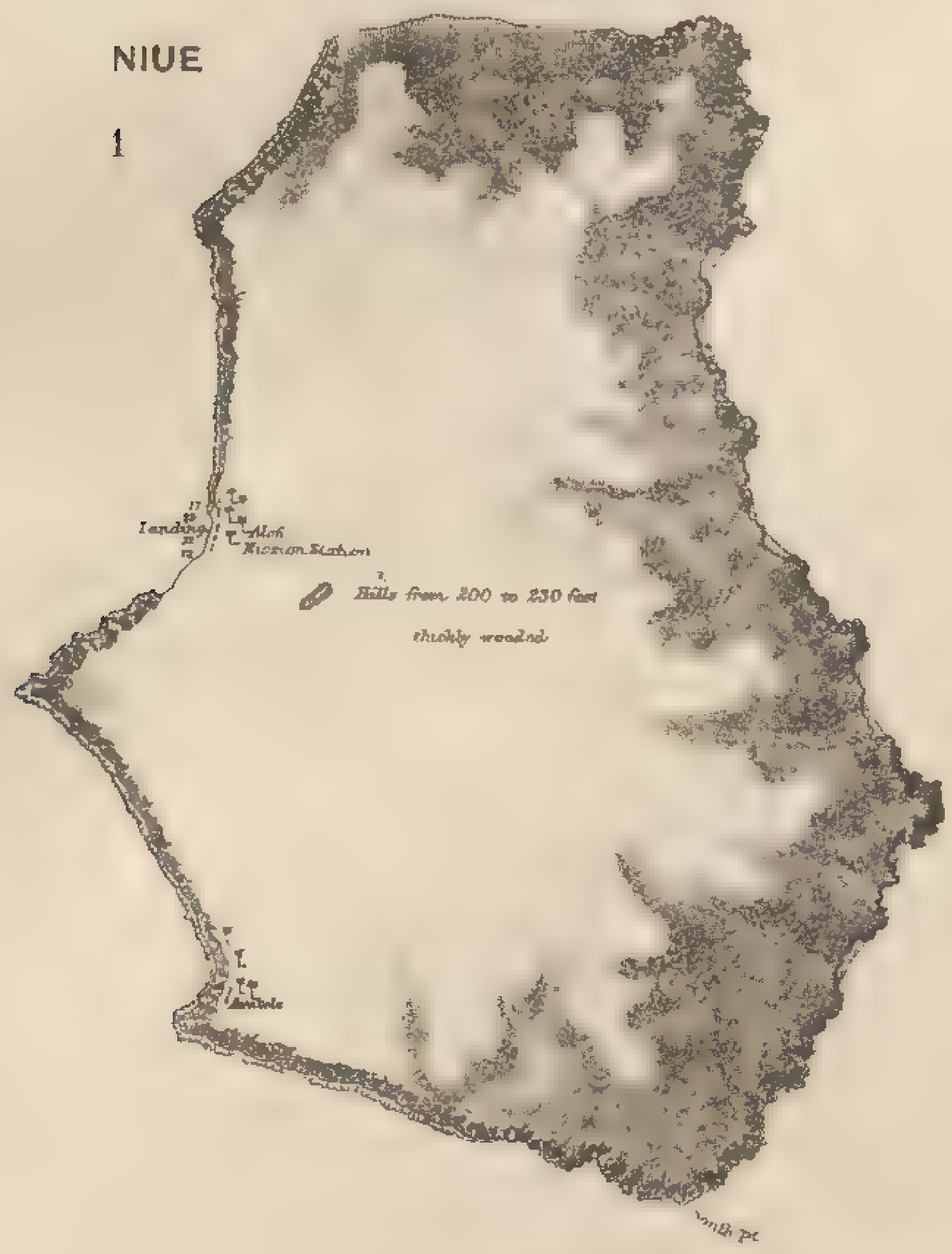
PLATE **212**.

PLATE 212.

1. Niue, from A. Chart 1176, scale six miles to the inch.
2. Aitutaki, from A. Chart 1264, scale two and one-half miles to the inch.
3. Palmerston Islands, from A. Chart 1176, scale two miles to the inch.
4. Eua, from A. Chart 1385, scale four miles to the inch.
5. Atiu, from A. Chart 1264, scale four miles to the inch.
6. Nukufetau, from A. Chart 766, scale four miles to the inch.
7. Niutao, from A Chart 987, scale two miles to the inch.
8. Nurakita, from A. Chart 766, scale one third of a mile to the inch.

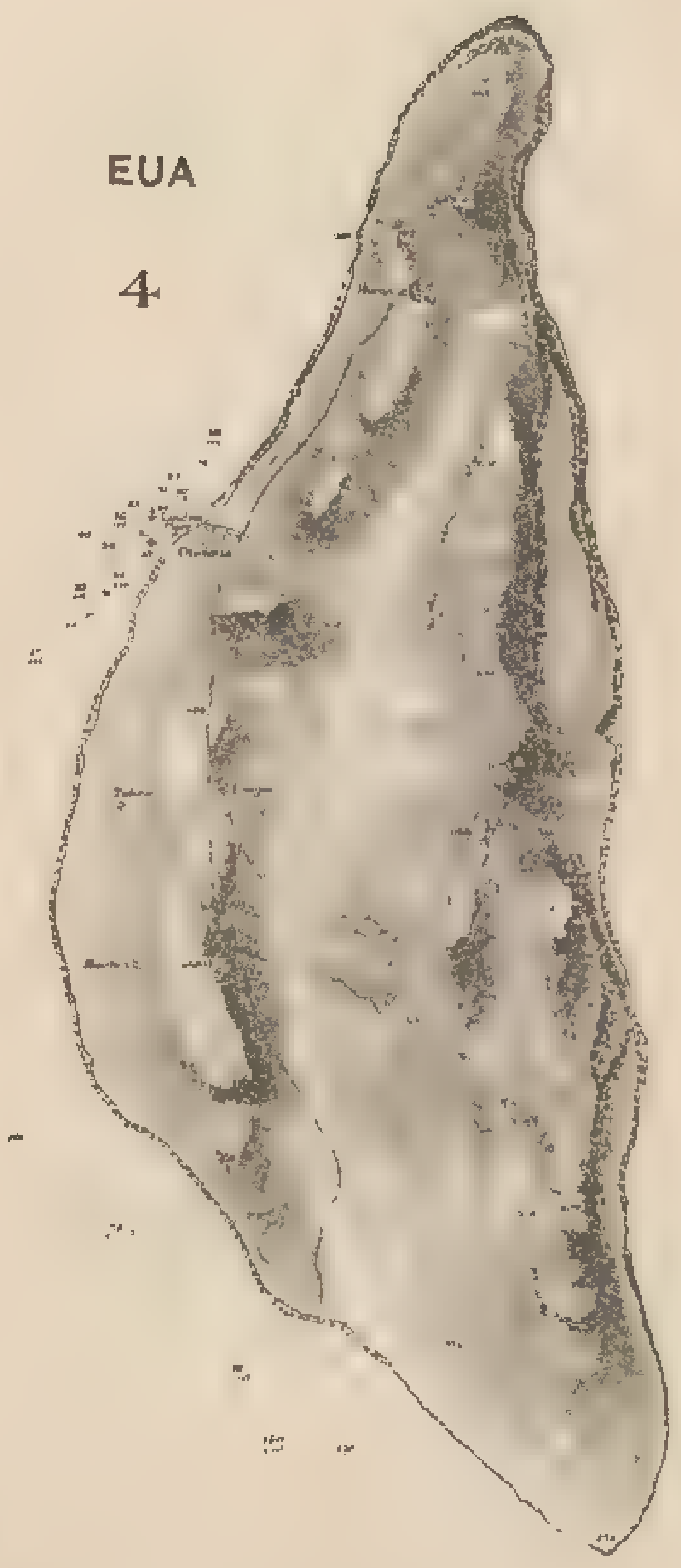
NIUE

1



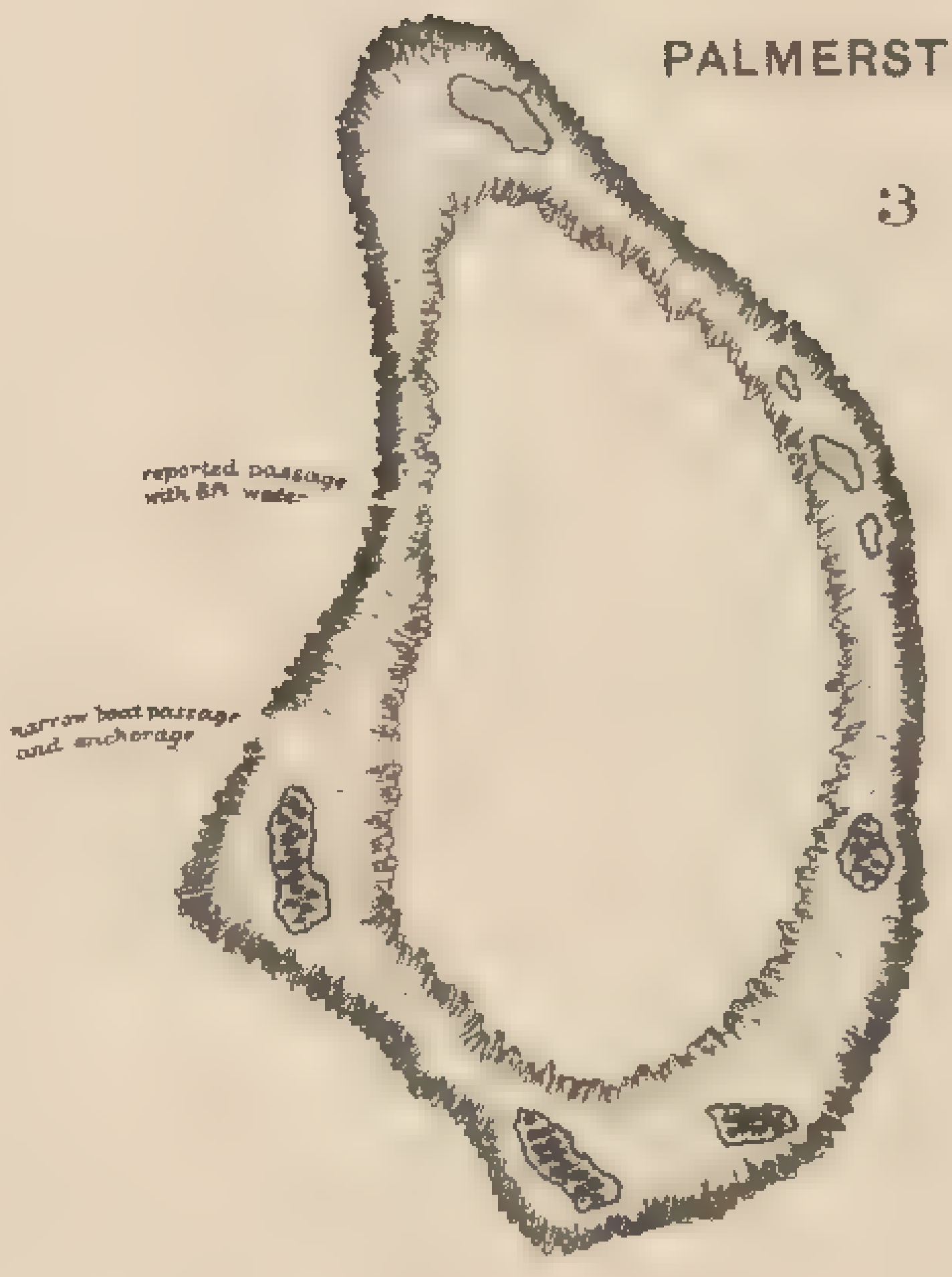
EUA

4



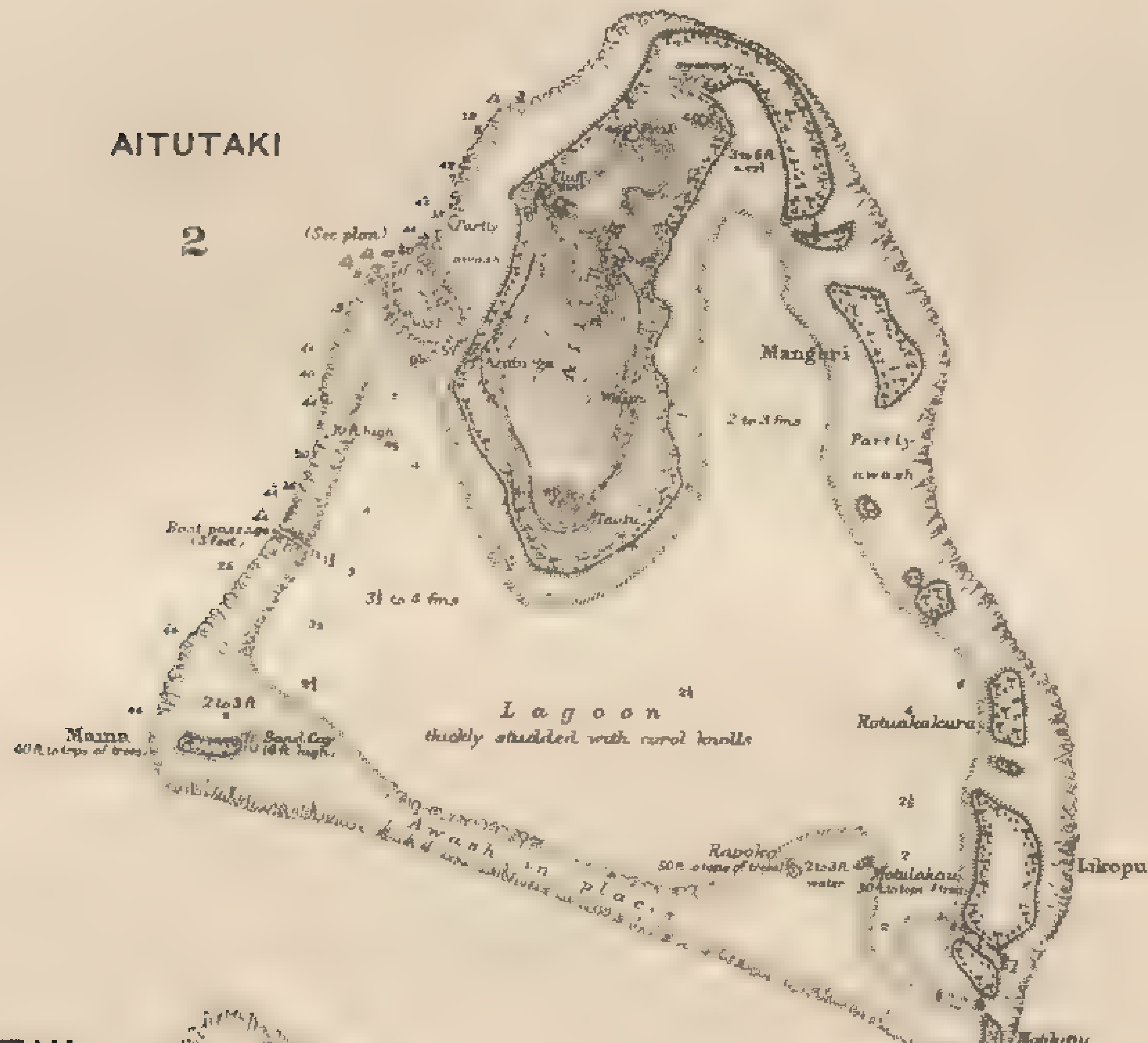
PALMERSTON

3



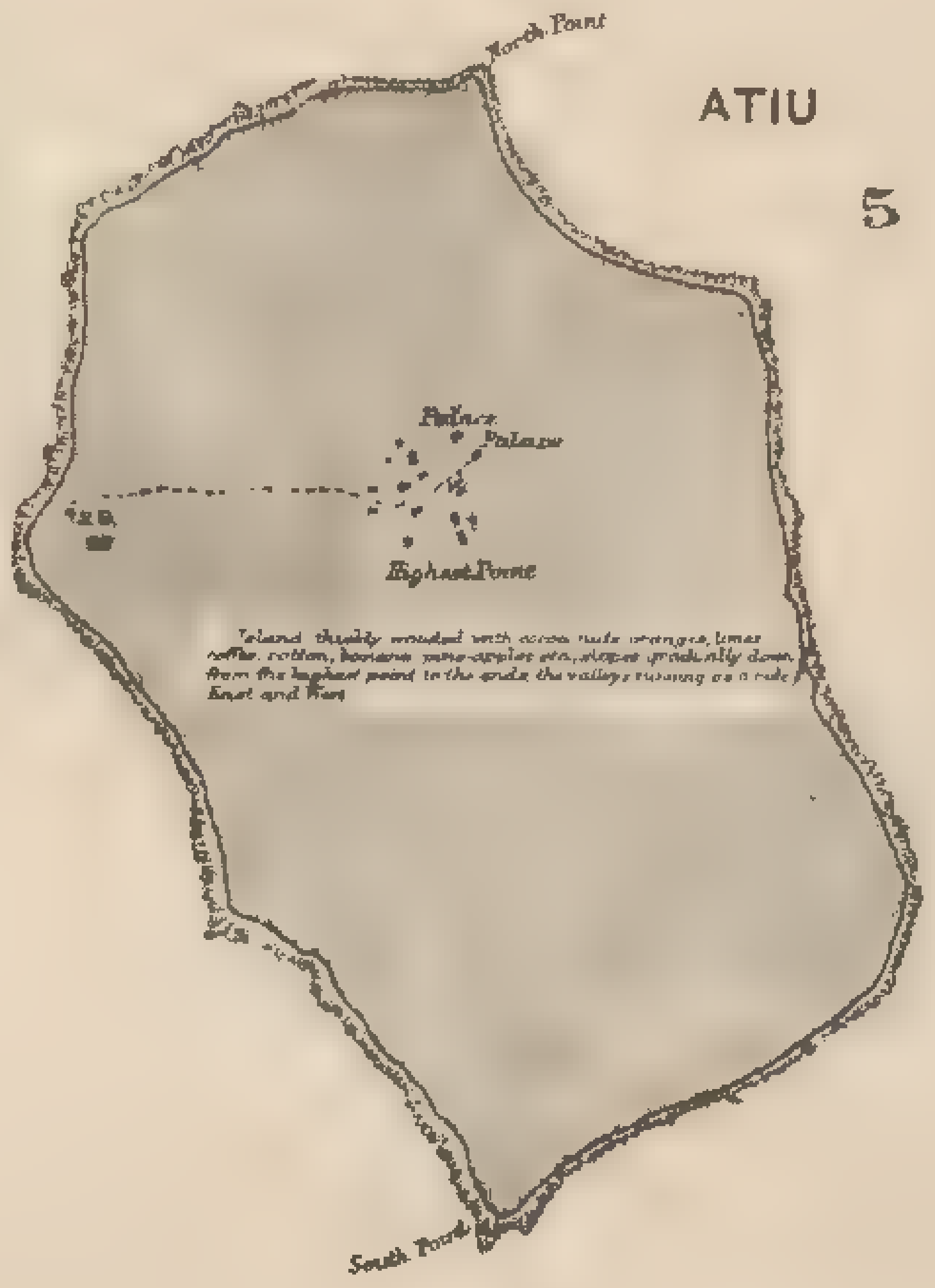
AITUTAKI

2



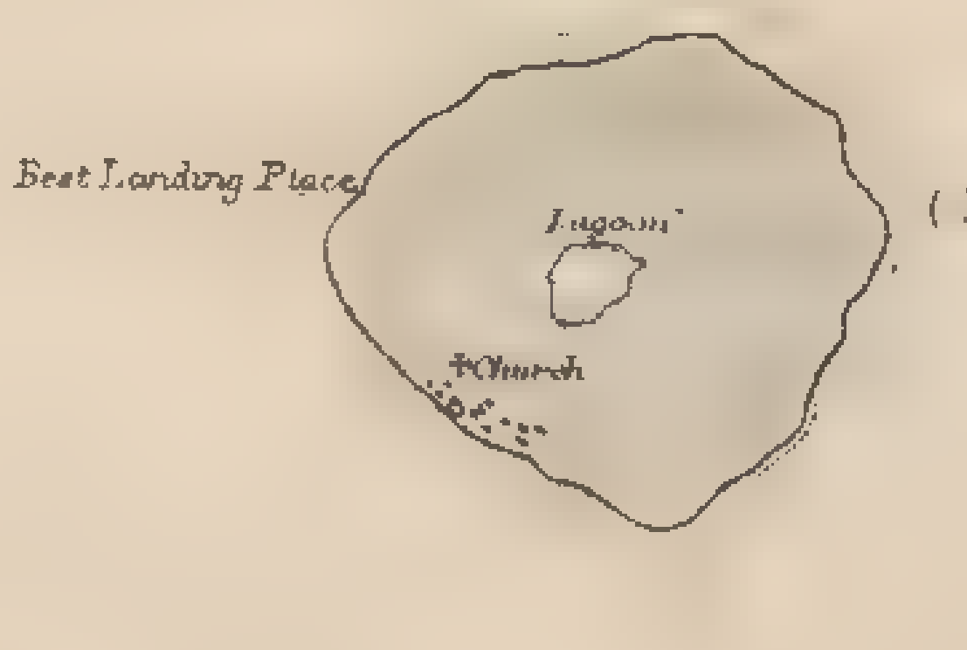
ATIU

5


North Point
Palace
Palace
Highest Point
Island thickly wooded with cocoa nuts oranges, limes
coffee, cotton, bananas pine-apples etc., slopes gradually down
from the highest point to the ends the valleys running as a rule
East and West
South Point

NIUTAO

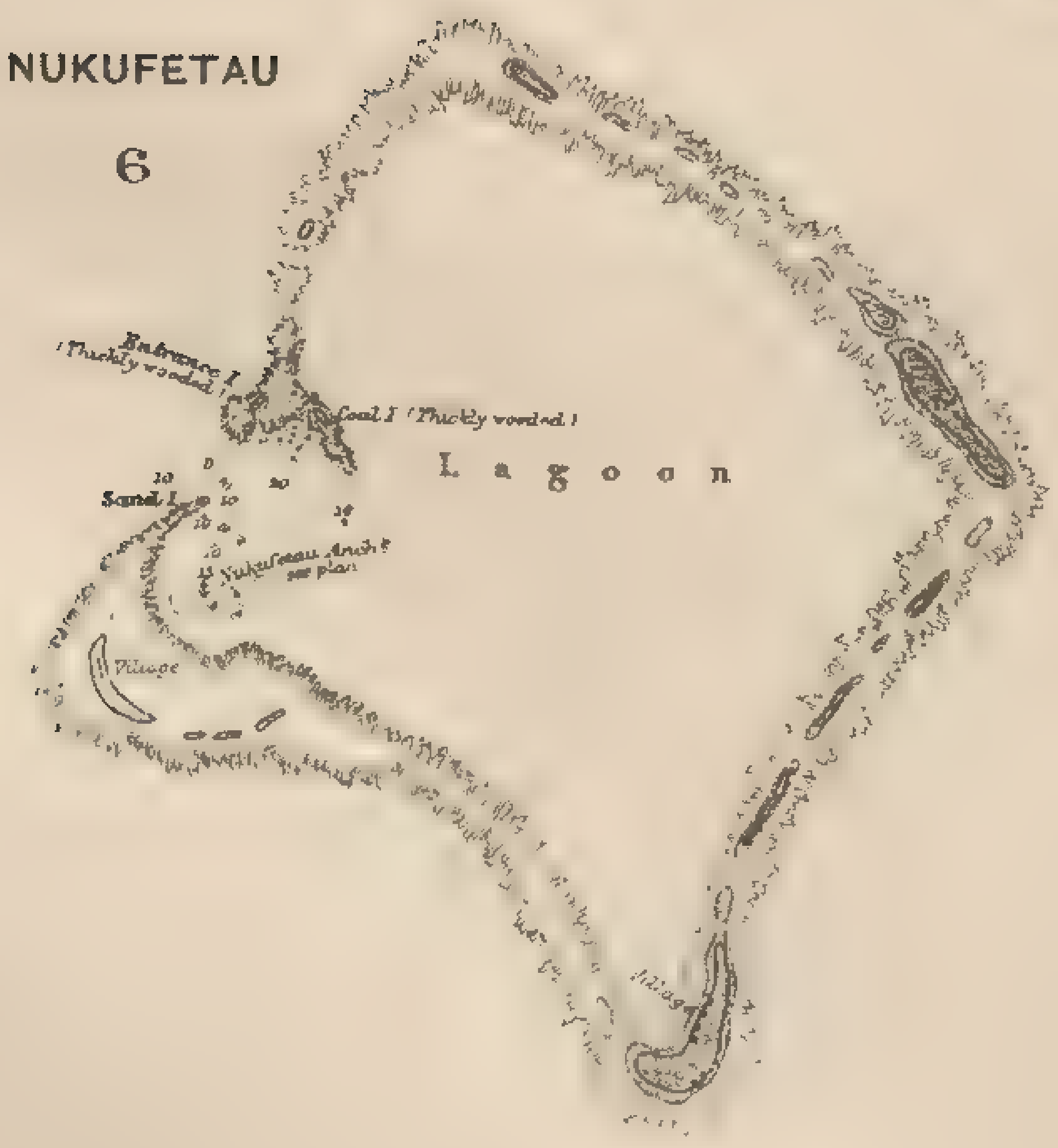
7



(Niutao)

NUKUFETAU

6



NURAKITA

8

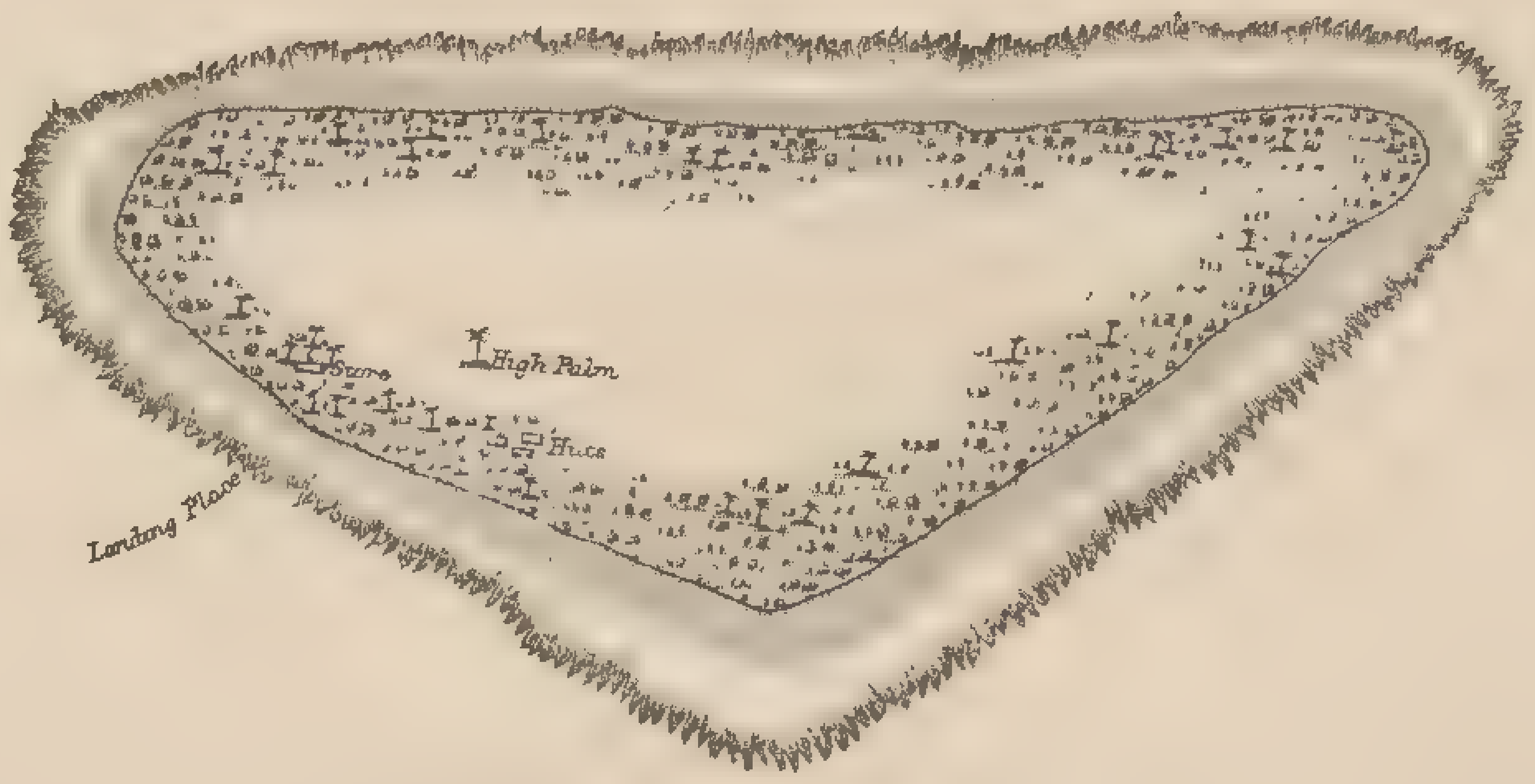


Plate **213**.

PLATE **213**.

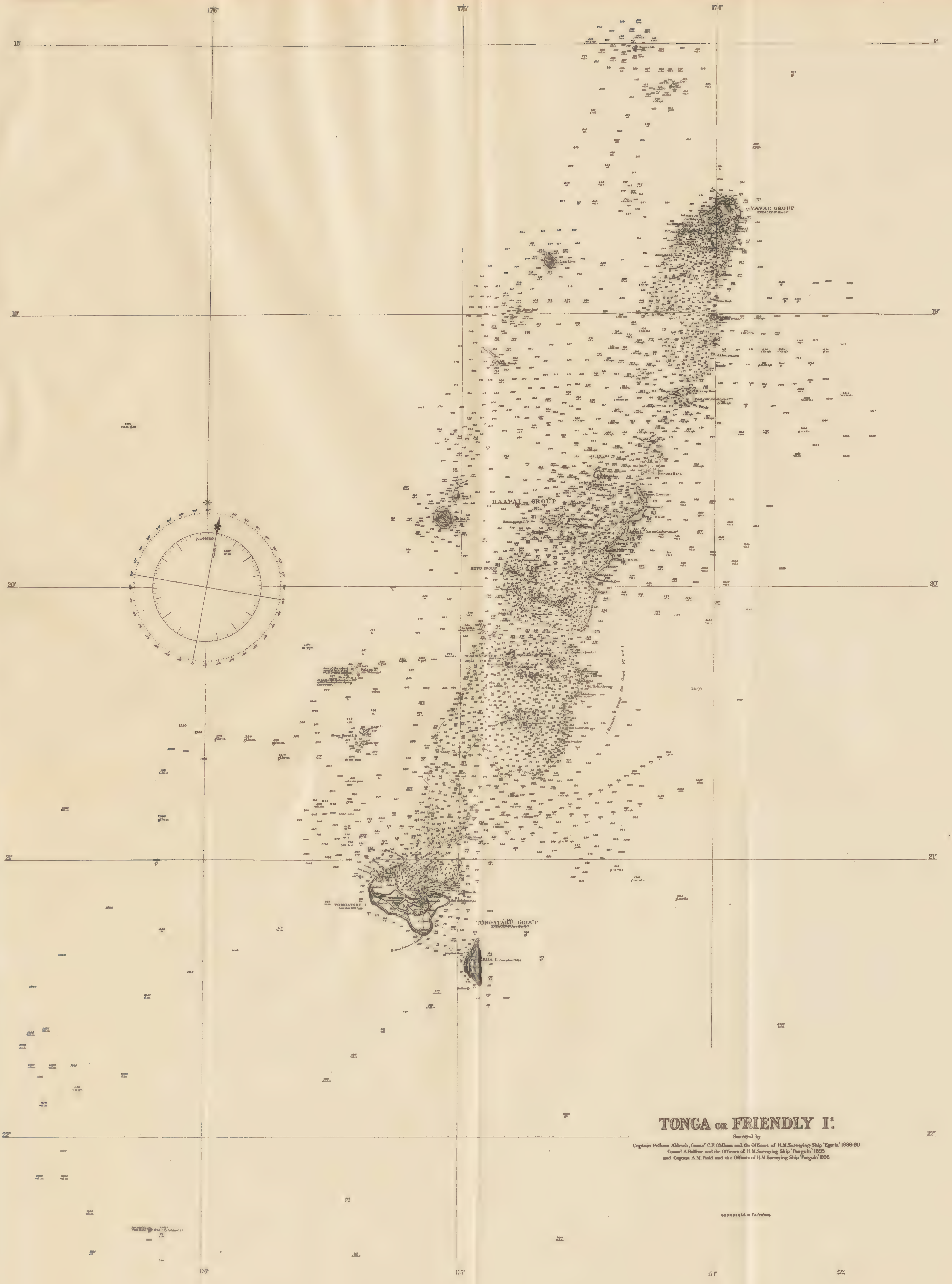
Track of the "Albatross," Niue to Fiji.

TRACK OF THE ALBATROSS
FROM
NIUE THROUGH THE **TONGAS** TO **FIJI**
SOUNDINGS IN FATHOMS

PLATE **214**.

PLATE **214**.

The Tonga Archipelago, from A. Chart 2421.



TONGA OR FRIENDLY Is.

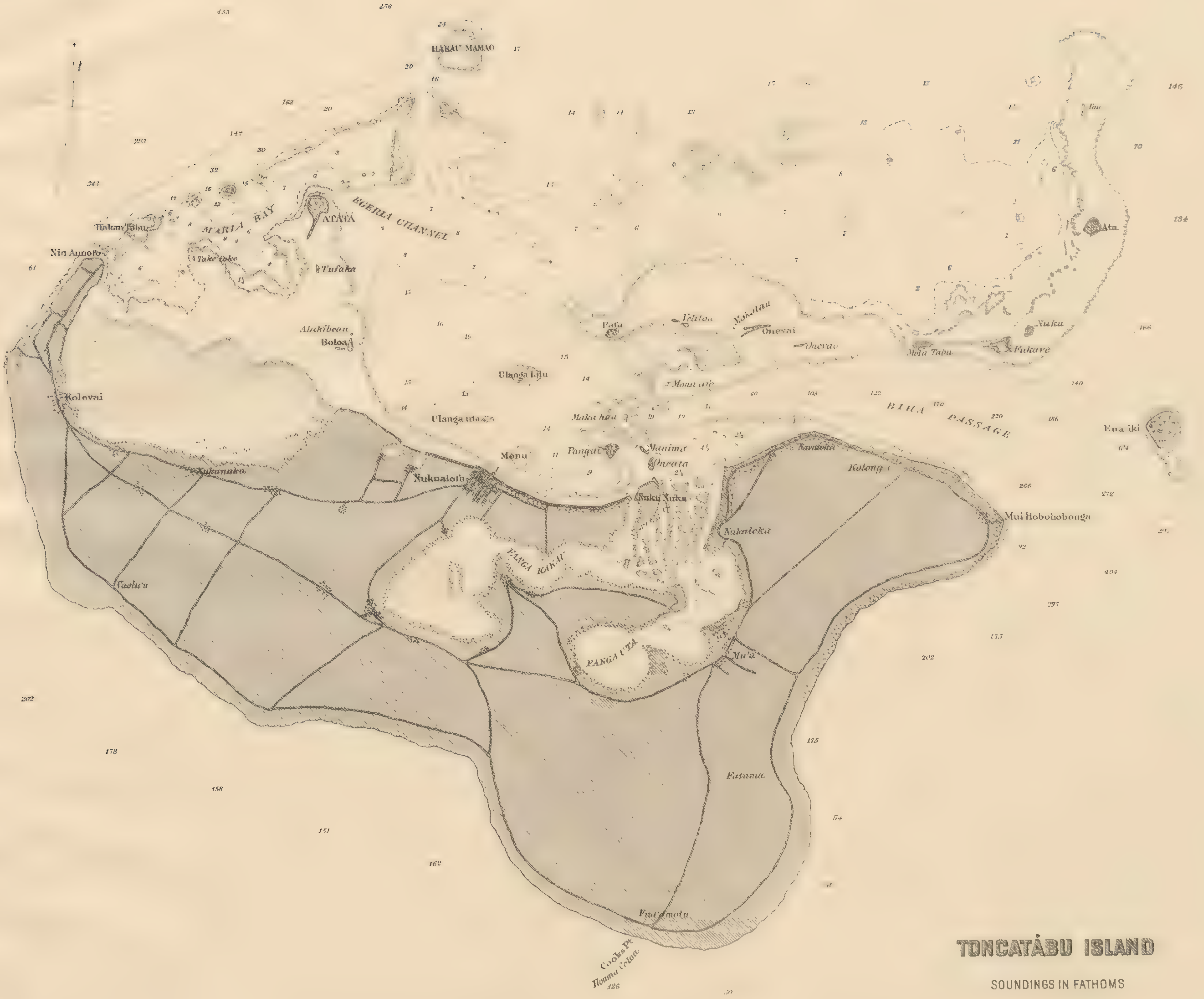
Surveyed by

Captain Pelham Aldrich, Commr. C.F. Oldham and the Officers of H.M. Surveying Ship 'Egeria' 1888-90
Commr. A. Balfour and the Officers of H.M. Surveying Ship 'Penguin' 1895
and Captain A.M. Field and the Officers of H.M. Surveying Ship 'Penguin' 1898

PLATE 215.

PLATE **215**.

Tongatábu, from A. Chart 2363, scale five miles to the inch.



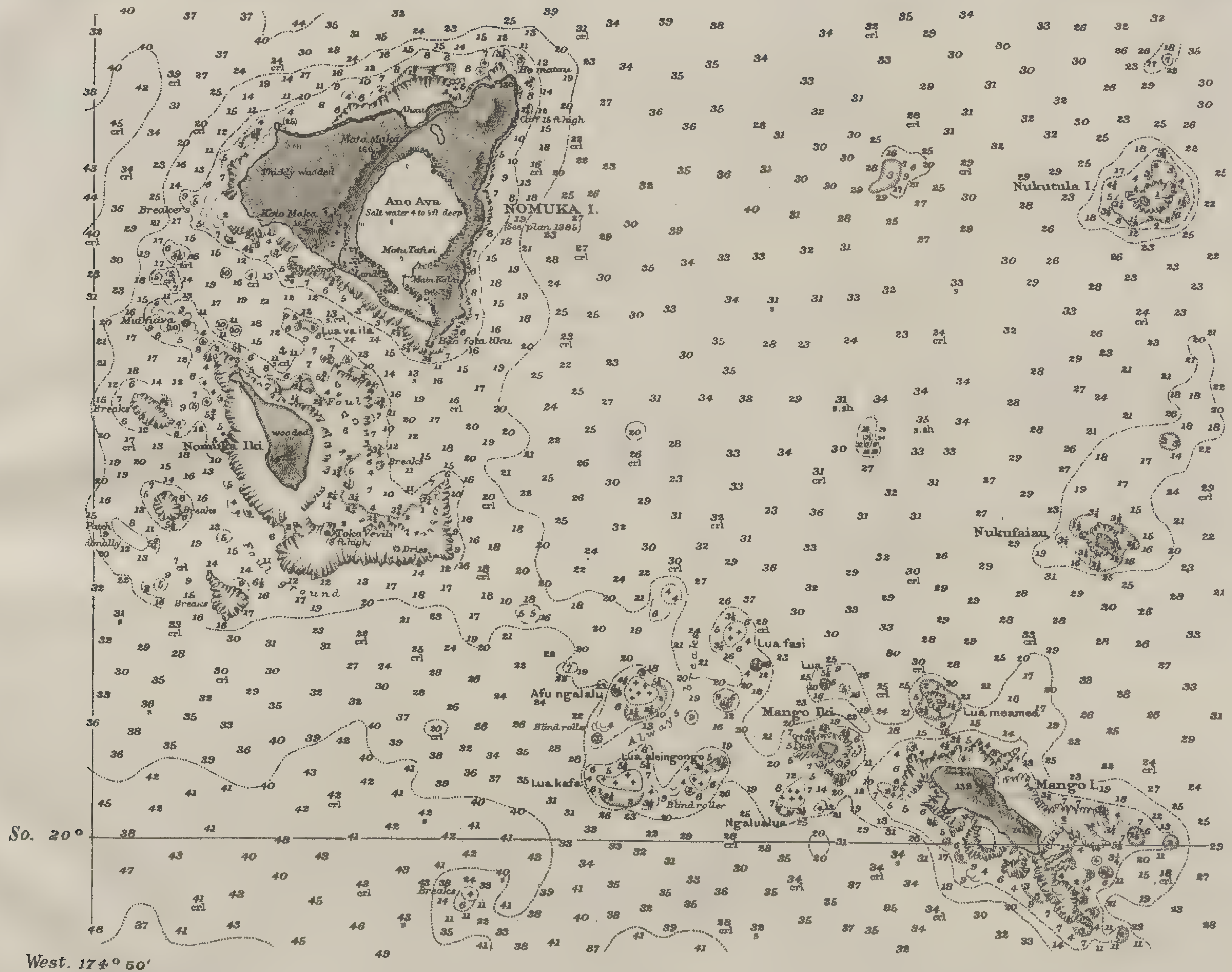
TONGATÁBU ISLAND

SOUNDINGS IN FATHOMS

PLATE **216**.

PLATE **216**.

Nomuka group, from A. Chart 471, scale one and one-fourth miles to the inch.

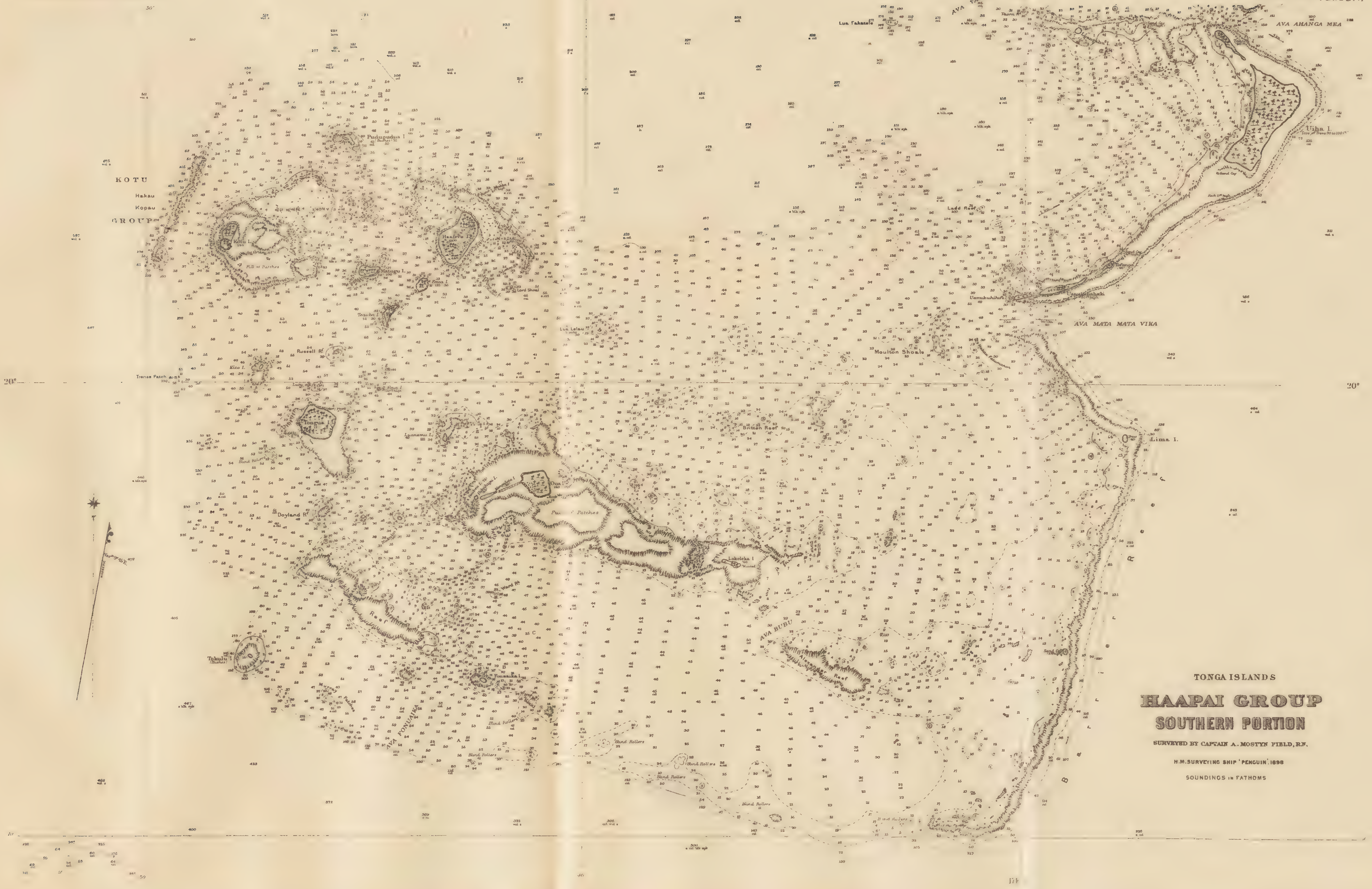


NOMUKA GROUP

PLATE **217**.

PLATE **217**.

Haapai group, southern part, from A. Chart 3100.



TONGA ISLANDS

HAAPAI GROUP
SOUTHERN PORTION

SURVEYED BY CAPTAIN A. MOSTYN FIELD, R.N.

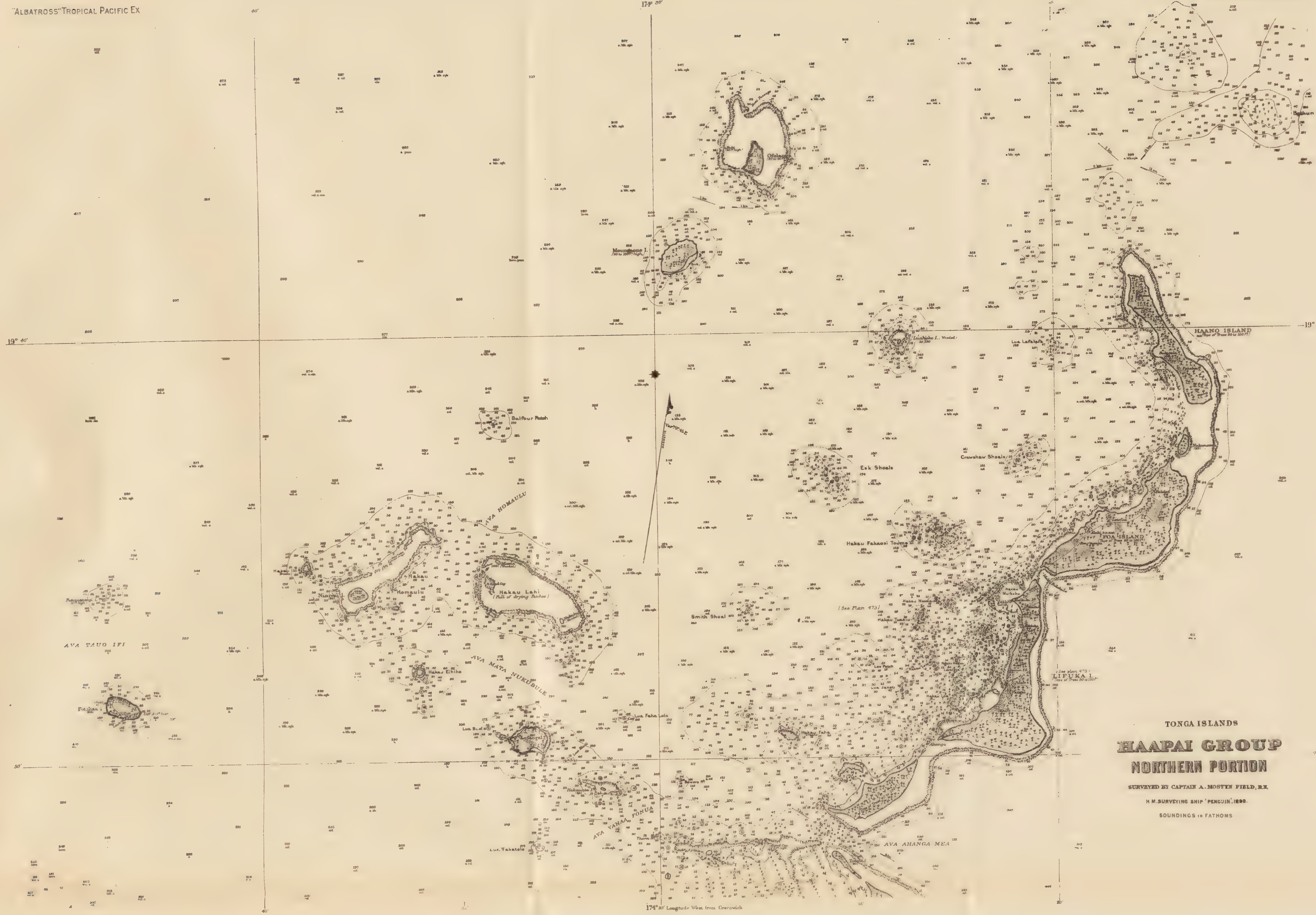
H.M. SURVEYING SHIP 'PENGUIN', 1898

SOUNDINGS IN FATHOMS

PLATE 218.

PLATE **218**.

Haapai group, northern part, from A. Chart 3099.



TONGA ISLANDS

HAAPAI GROUP
NORTHERN PORTION

SURVEYED BY CAPTAIN A. MOSTYN FIELD, R.N.

H.M. SURVEYING SHIP 'PENGUIN', 1898.

SOUNDINGS IN FATHOMS

PLATE 219.

PLATE **219**.

Vavau group, from A. Chart 3098.

VAVAU GROUP

SURVEYED BY CAPTAIN A. MOSTYN FIELD, R.N.

H.M. SURVEYING SHIP 'PENGUIN', 1898

All Bearings are Magnetic

SOUNDINGS IN FATHOMS

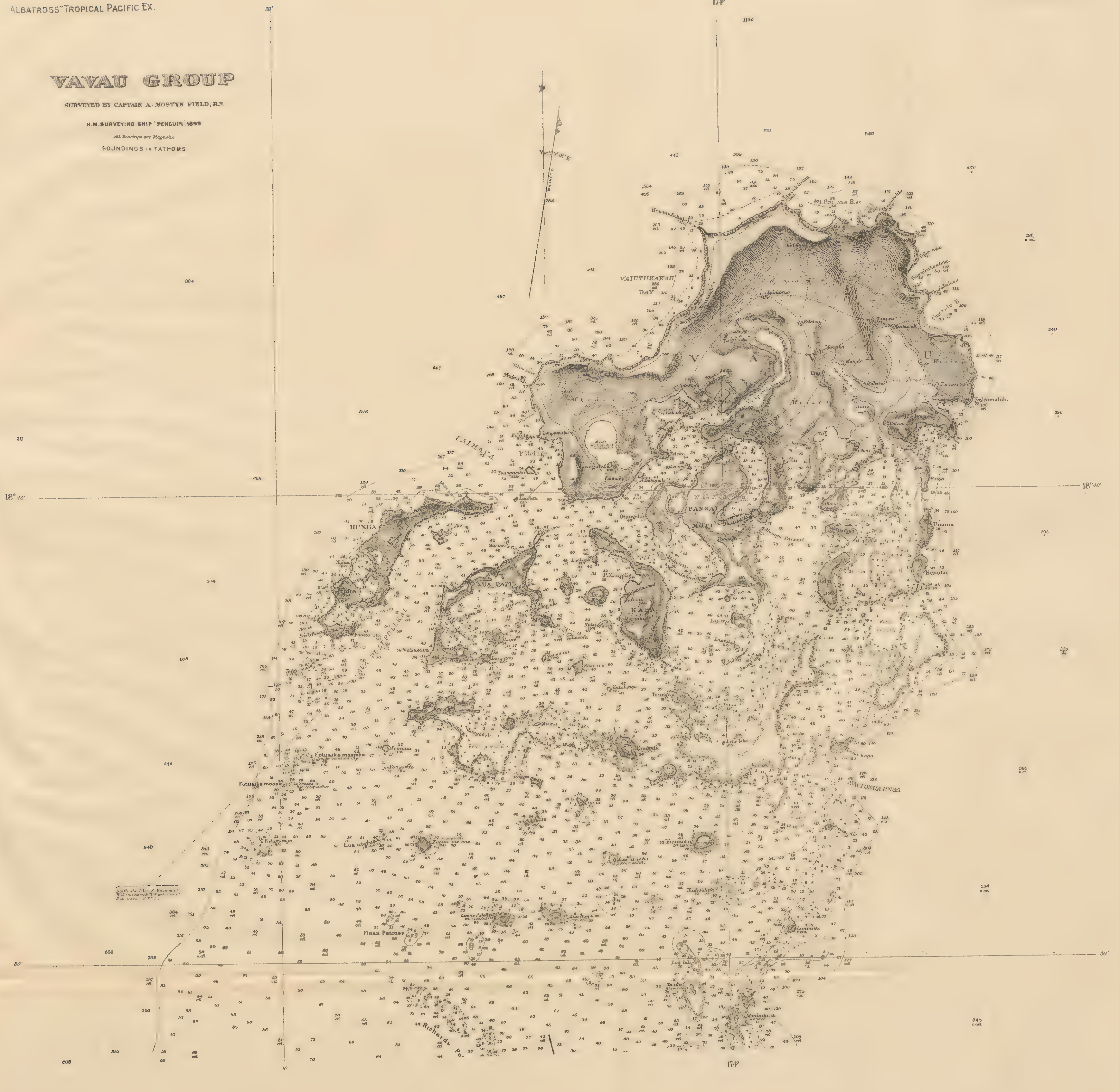


PLATE 220.

PLATE **220**.

The Fiji Islands, from A. Chart 2691.

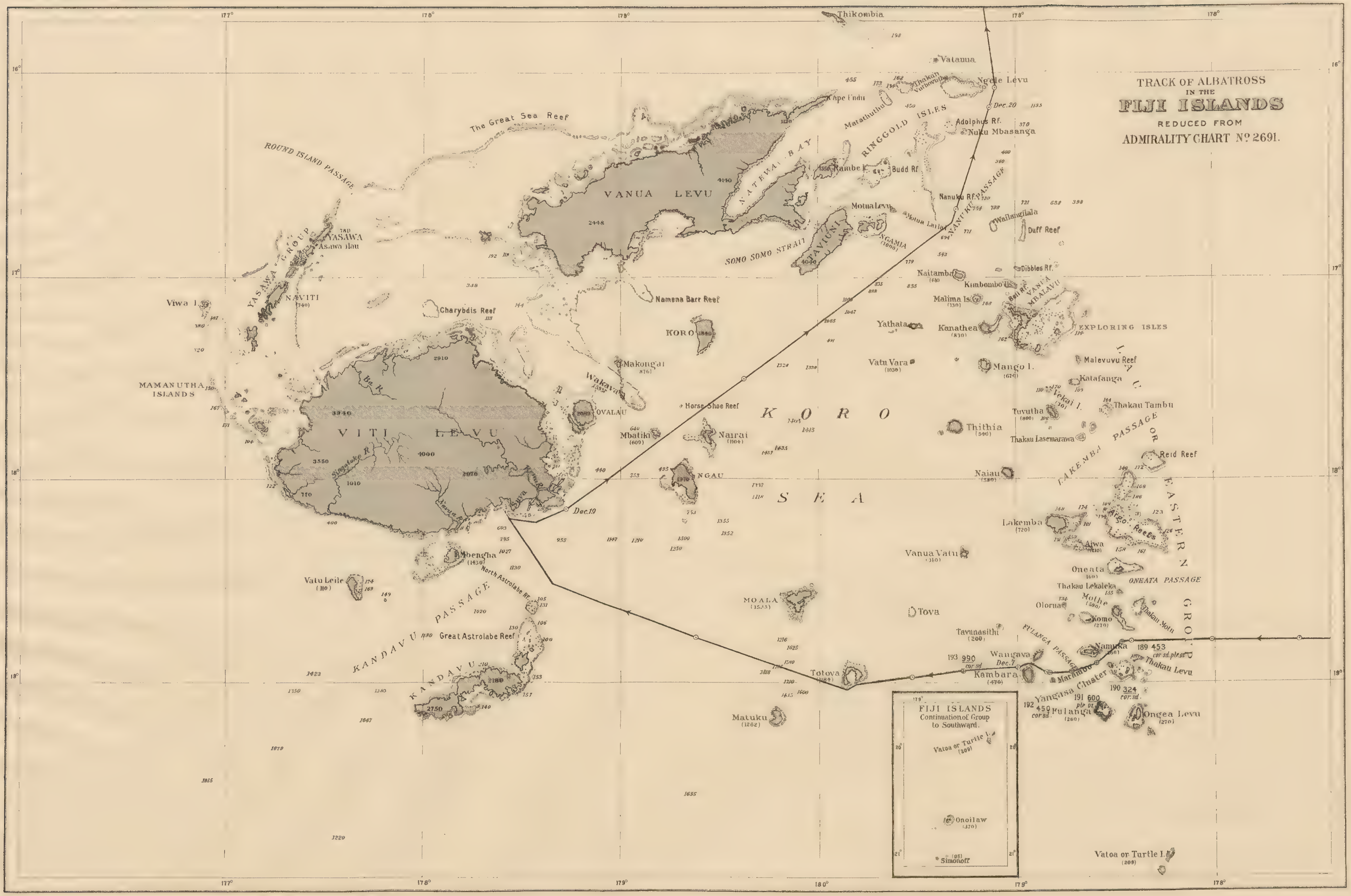

TRACK OF ALBATROSS
IN THE
FIJI ISLANDS
REDUCED FROM
ADMIRALITY CHART No. 2691.
VANUA LEVU
VITI LEVU
KORO SEA
NATEWA BAY
SOMO SOMO STRAIT
TAVIUNI
RINGGOLD ISLES
NANUKU PASSAGE
The Great Sea Reef
ROUND ISLAND PASSAGE
YASAWA GROUP
YASAWA
Asawa ilau
NAVITI
Viwa I.
MAMANUTHA ISLANDS
Charybdis Reef
Namena Barr Reef
KORO
Makongai
Wakaya
OVALAU
Horse Shoe Reef
Mbatiki
Nairai
NGAU
Mbengha
North Astrolabe Rf.
Vatu Leile
KANDAVU PASSAGE
Great Astrolabe Reef
KANDAVU
MOALA
Totova
Matuku
Tova
Thikombia
Vatanua
Ngele Levu
Kape Undu
Dec. 20
Adolphus Rf.
Nuku Mbasanga
Rambe I.
Budd Rf.
Nanuku Rf.
Motua Levu
NGAMIA
Wailangilala
Duff Reef
Dibbles Rf.
Naitamba
Kimbombo Is.
Malima Is.
Yathata
Kanathea
VANUA MBALAVU
EXPLORING ISLES
Vatu Vara
Mango I.
Malevuvu Reef
Katafanga
Tuvutha
Thithia
Thakau Tambu
Thakau Lasemarawa
LAKEMBA PASSAGE
Reid Reef
Naiau
Lakemba
Aiwa
Vanua Vatu
Oneata
ONEATA PASSAGE
Thakau Lekaleka
Oloruo
Mothe
Komo
LAU OR EASTERN GROUP
Tavunasithi
FULANGA PASSAGE
Namuka
Wangava
Dec. 7
Kambara
Thakau Levu
Yangasa Cluster
Fulanga
Ongea Levu
Dec. 19
Vatoa or Turtle I.
FIJI ISLANDS
Continuation of Group
to Southward.
Onoilaw
Simonoff
177°
178°
179°
180°
16°
17°
18°
19°
20°
21°

Plate **221**.

PLATE **221**.

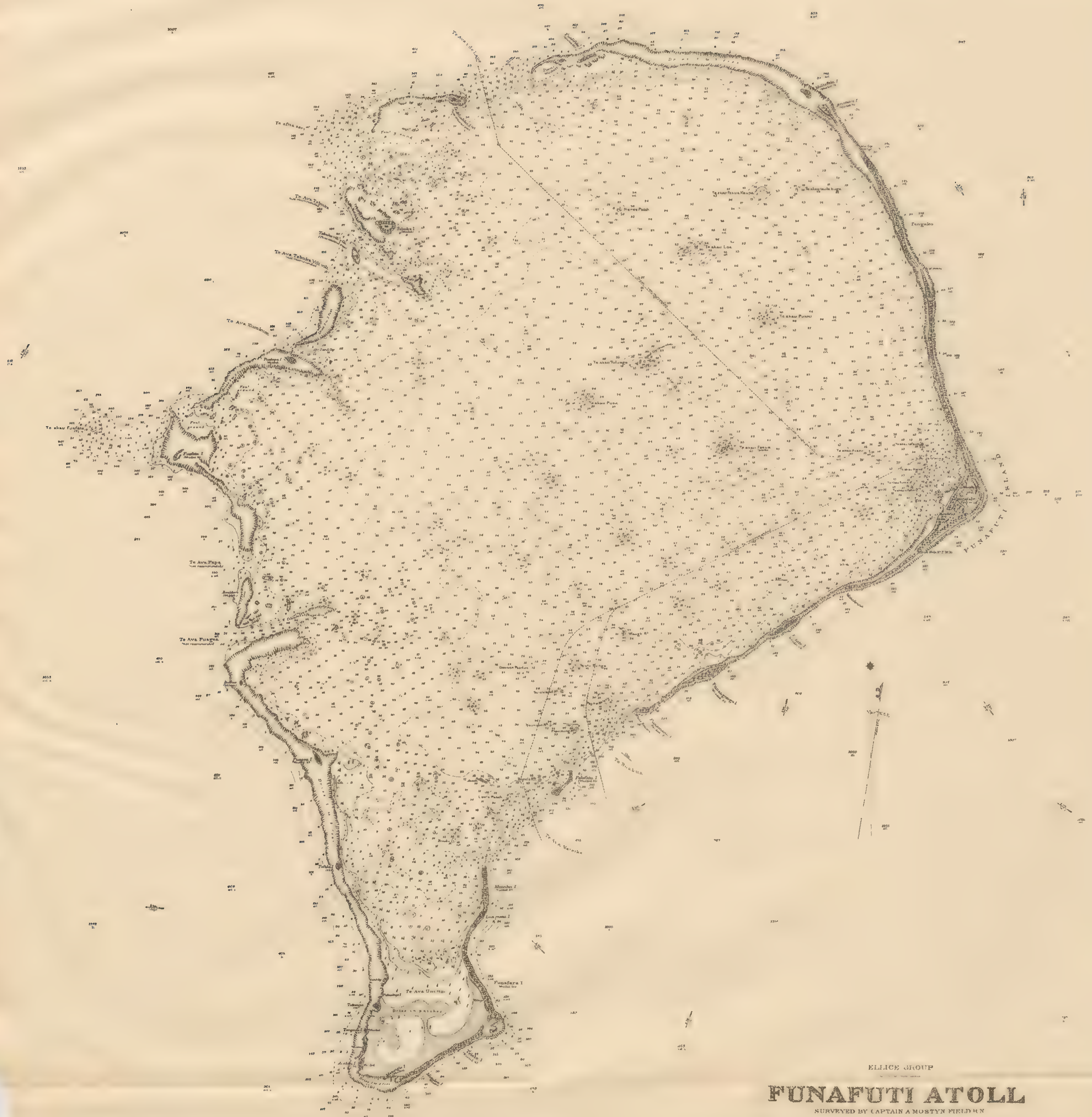
Track of the "Albatross," from the Fiji Islands through the Ellice group.

TRACK OF THE ALBATROSS
FROM THE
FIJI TO GILBERT ISLANDS
THROUGH THE
ELLICE ISLANDS.
SOUNDINGS IN FATHOMS.

PLATE 222.

PLATE **222**.

Funafuti, from A. Chart 2983, scale one and one-half miles to the inch.



ELLICE GROUP

FUNAFUTI ATOLL

SURVEYED BY CAPTAIN A MOSTYN FIELD R N

H.M SURVEYING SHIP "PENGUIN", 1896

SOUNDINGS IN FATHOMS

PLATE 223.

PLATE 223.

Track of the " Albatross " through the Gilbert Islands.

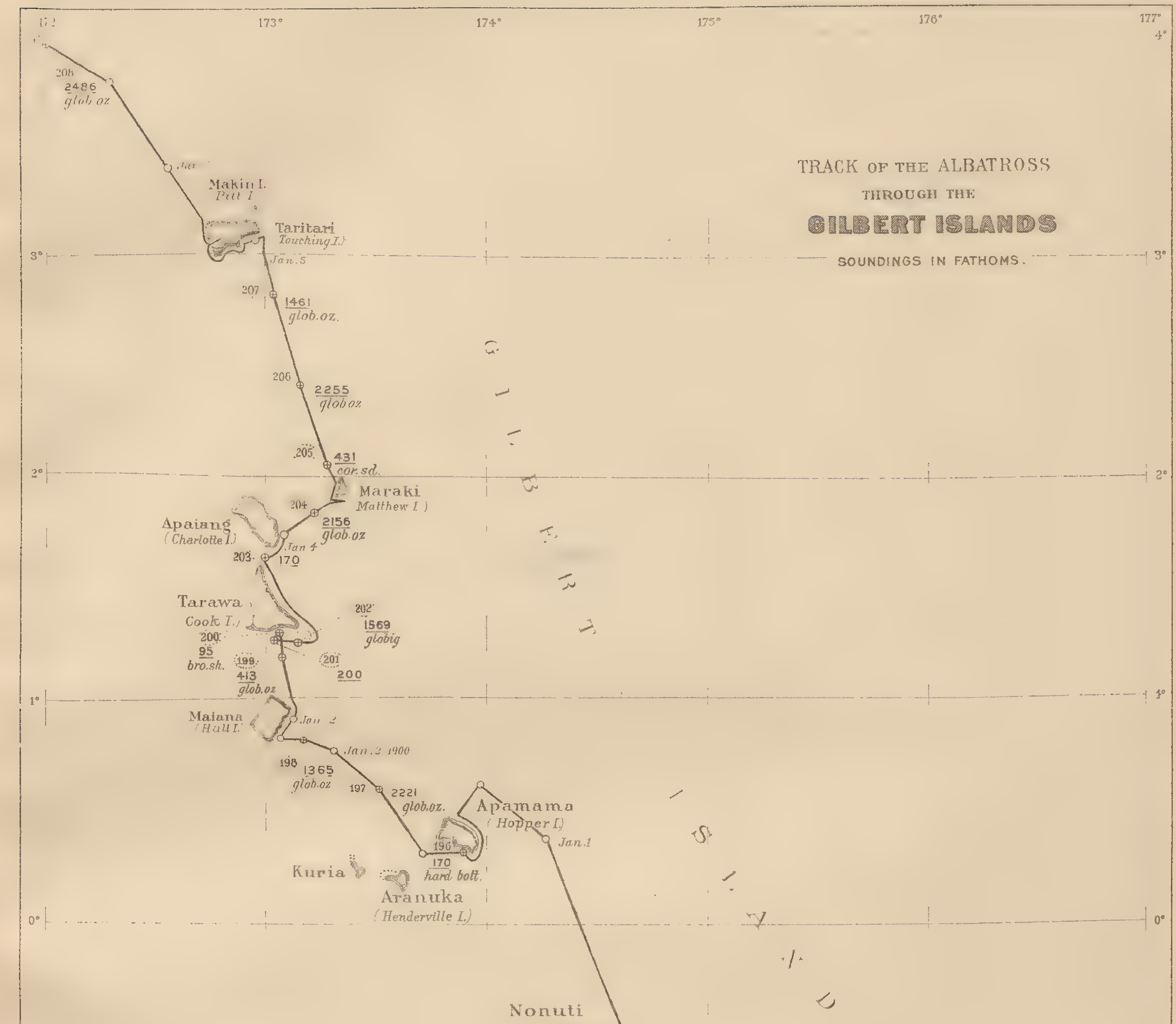

TRACK OF THE ALBATROSS
THROUGH THE
GILBERT ISLANDS
SOUNDINGS IN FATHOMS.
GILBERT ISLANDS
172°
173°
174°
175°
176°
177°
4°
3°
2°
1°
0°
1°
2°
3°
208
2486
glob. oz
Makin I.
Pitt I.
Taritari
Touching I.
Jan. 5
207
1461
glob. oz.
206
2255
glob oz
205
431
cor. sd.
Maraki
Matthew I.
204
2156
glob. oz
Apaiang
(Charlotte I.)
Jan 4
203
170
Tarawa
Cook I.
202
1569
globig
200
95
bro. sh.
199
413
glob. oz
201
200
Maiana
(Hall I.)
Jan. 2
Jan. 2 1900
198
1365
glob. oz
197
2221
glob. oz.
Apamama
(Hopper I.)
Jan. 1
196
170
hard bott.
Kuria
Aranuka
(Henderville I.)
Nonuti
Sydenham I.
Dec. 31
Tapeteuea
Drummond I.
Peru
(Francis I.)
Nukunau
(Byron I.)
Onoatoa
(Clerk I.)
Dec. 31
Tamana
(Rotcher
Arorai
Hurd
Dec. 29 '99

PLATE **224**.

PLATE 224.

1. Funafuti Island, eastern horn and secondary lagoon of Funafuti, from A. Chart 2983, scale one third of a mile to the inch.
2. Apaiang, from A. Chart 732, scale four miles to the inch.
3. Maraki, from A. Chart 732, scale three and one-half miles to the inch.
4. Taritari, from A. Chart 732, scale four miles to the inch.
5. Tarawa, from A. Chart 732, scale five miles to the inch.
6. Maiana, from A. Chart 732, scale three and one-half miles to the inch.

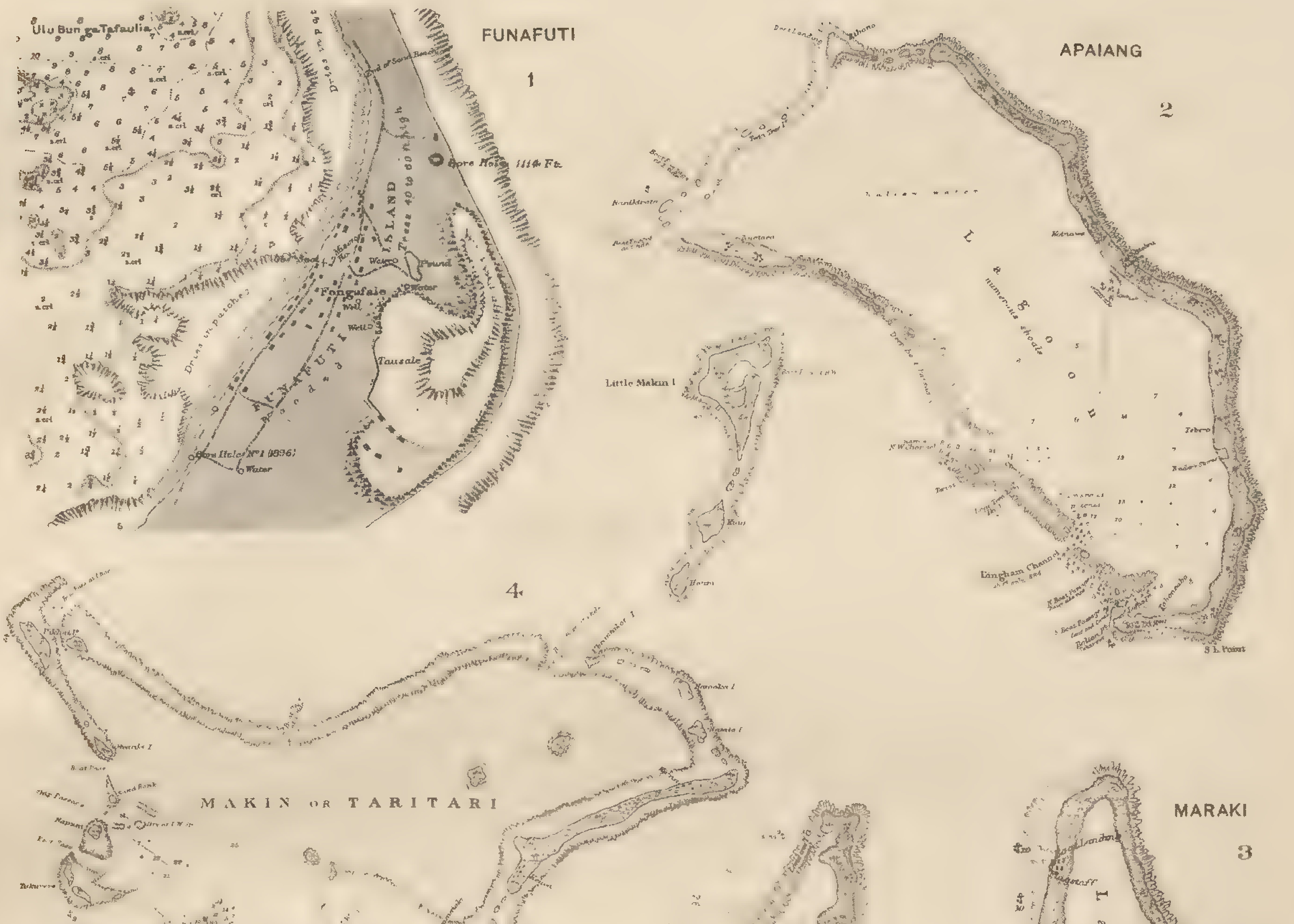
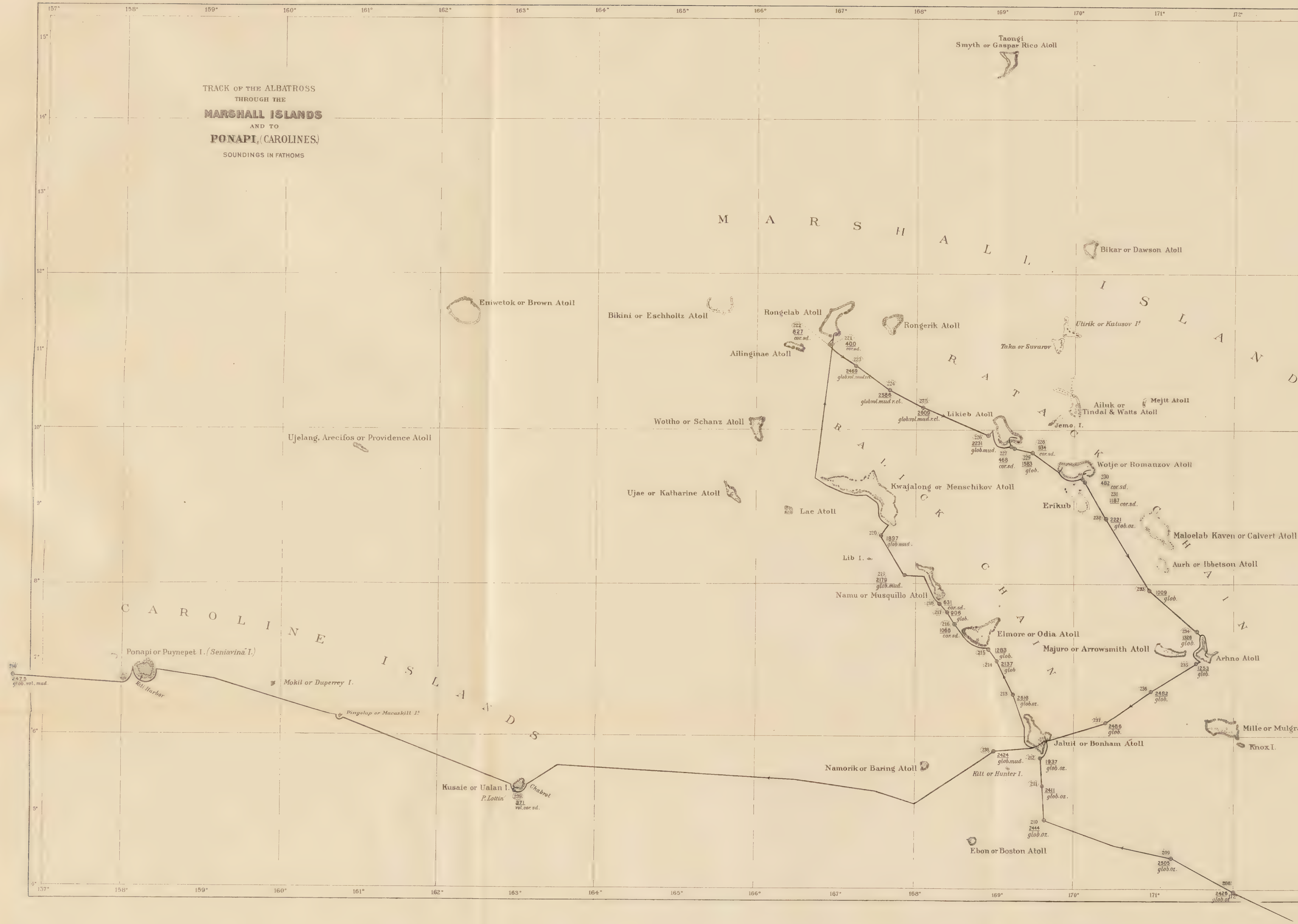

FUNAFUTI
1
Ulu Bun ga Tafaulia
FUNAFUTI ISLAND
Fongafale
Tausale
Bore Hole 1114 Ft.
Bore Hole No. 1 (1896)
Water
Pound
Well
Dries in patches
APAIANG
2
Little Makin I.
Langham Channel
S. E. Point
MARAKI
3
Lagoon
No passage
Boat Passage at H.W.
4
MAKIN OR TARITARI
TARAWA
5
MAIANA
6
Boat Anchorage
nearly dry at L.W. Sp.
Lagoon
Dry at L.W.

PLATE 225.

PLATE 225.

Track of the "Albatross" through the Marshall Islands and to Ponapi (Carolines).



TRACK OF THE ALBATROSS
THROUGH THE
MARSHALL ISLANDS
AND TO
PONAPI, (CAROLINES.)
SOUNDINGS IN FATHOMS

PLATE 226.

PLATE 226.

1. Tapeteuea, from H. O. Chart 120, scale four miles to the inch.
2. Apamama, from A. Chart 731, scale four miles to the inch.
3. Peru, from H. O. Chart 497, scale four miles to the inch.
4. Jemo, from German Hydrog. Bureau, No. 113; scale eight miles to the inch.
5. Ailinglap, scale eight miles to the inch.
6. Jaluit, scale seven miles to the inch.
7. Lib, scale eight miles to the inch.
8. Rongelab, scale ten miles to the inch.
9. Lai, scale five miles to the inch.
10. Namorik, scale eight miles to the inch.

5–10 from German Hydrog. Bureau, No. 113.

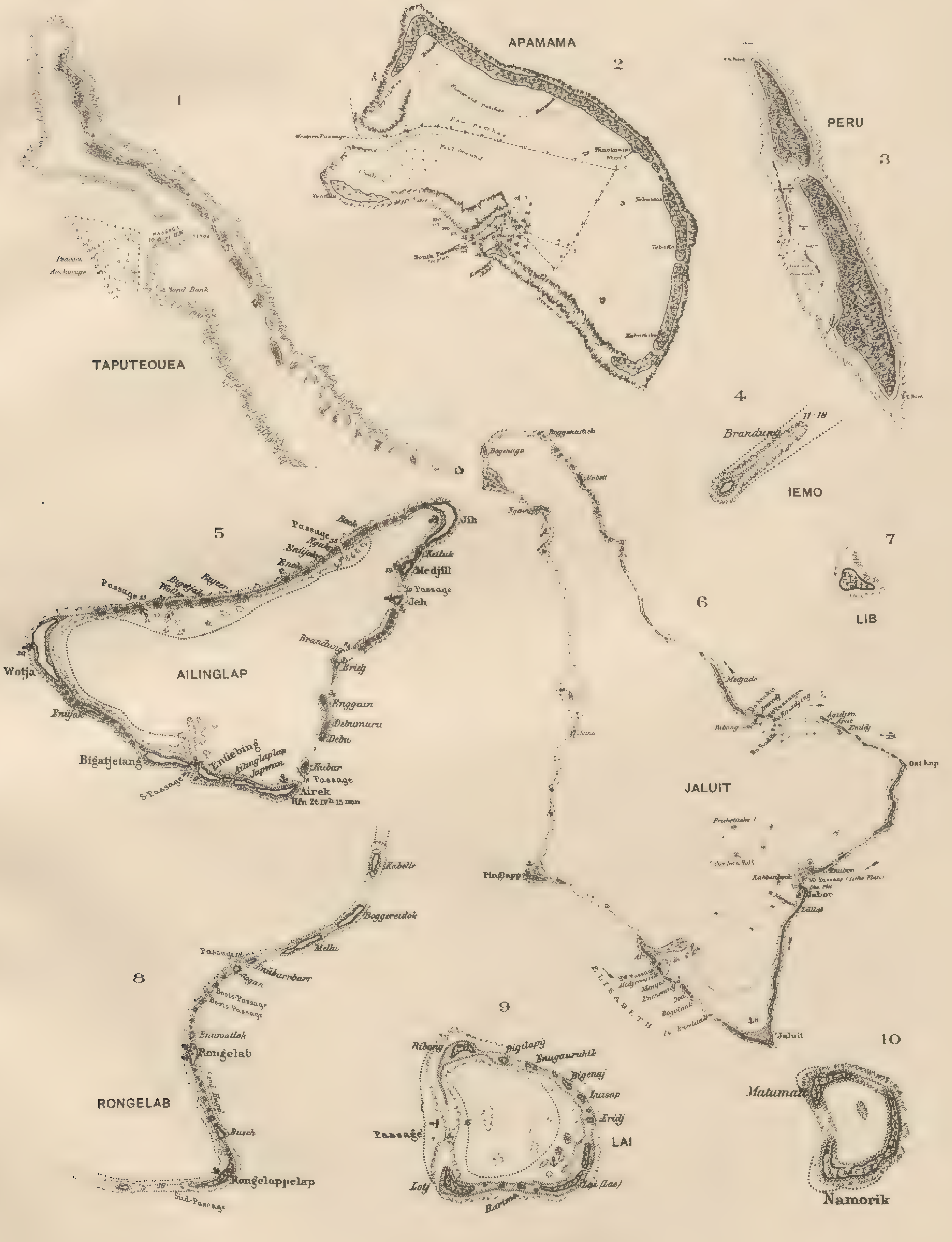

1
TAPUTEOUEA
Passage
Sand Bank
Anchorage
2
APAMAMA
Western Passage
Numerous patches
Foul Ground
South Passage
3
PERU
4
Branduru
11-18
IEMO
5
AILINGLAP
Passage
Book
Ngake
Enijak
Enok
Jih
Kelluk
Medjill
Passage
Jeh
Passage 13
Bigdjar
Wotja
Brandwij
Eridj
Enggain
Debumaru
Debu
Enijak
Bigatjelang
Enliebing
Ailinglaplap
Japwan
Kubar
Passage
Airek
S Passage
Hfn Zt IVh 15 min
6
JALUIT
Boggenadick
Bogenuga
Urbett
Medjado
Ribong
Ont knp
Pinglapp
Kabbenbock
Jabor
Jaluit
Emidj
ELISABETH
Bogolank
7
LIB
8
RONGELAB
Anbelle
Boggereidok
Mellu
Passage 18
Eniibarrbarr
Boots Passage
Boots Passage
Eniuwatlok
Rongelab
Busch
Rongelappelap
Sud-Passage
9
LAI
Ribong
Bigilapy
Engaurubik
Bigenaj
Luisap
Eridj
Passage
Loty
Barime
Lai (Las)
10
Matumati
Namorik

PLATE 227.

PLATE 227.

1. Namu, German Hydrog., No. 113; scale five miles to the inch.

2. Kwajalong, scale thirteen miles to the inch.

3. Taongi, scale eight miles to the inch.

4. Wotje Island (Wotje), scale one mile to the inch.

5. Pingelap, Carolines (A. Chart 772), scale one and one-fourth miles to the inch.

2–4 from German Hydrog. Bureau, No. 113.

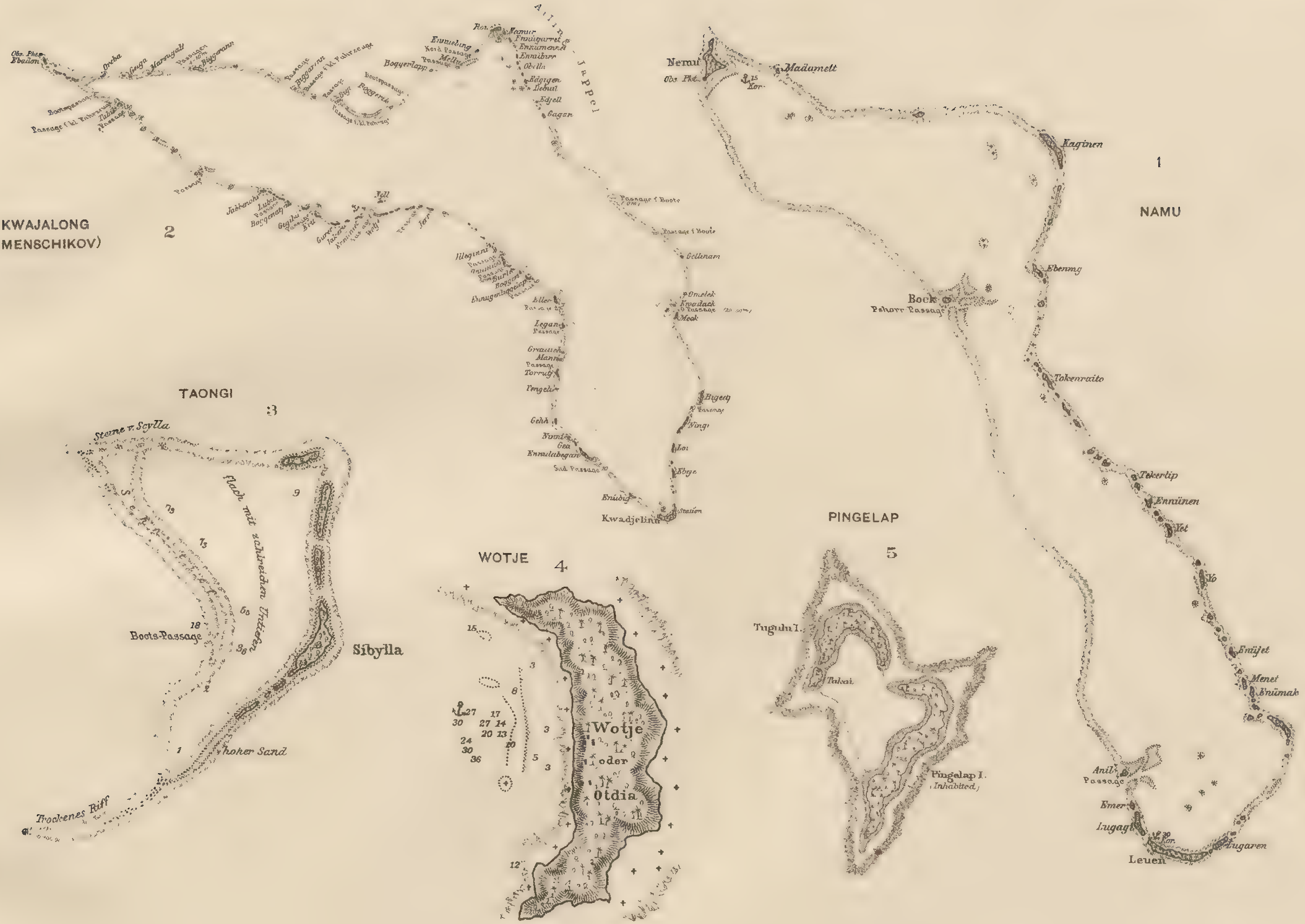

NAMU
1
Nemu
Obs. Pkt.
Madamett
Kaginen
Ebenmg
Bock
Pohorr Passage
Tokenraito
Tokerlip
Enraiinen
Yet
Enüjet
Menet
Enümak
Anil Passage
Emer
Lugagi
Leuen
Lugaren
KWAJALONG
(MENSCHIKOV)
2
Obs. Pkt.
Ebadon
Oreba
Namur
Roi
Boggerlapp
Ennugarret
Ennumennet
Enniburr
Ebeljo
Bagan
Passage f. Boote
Gellenam
Omelek
Kwadack
Passage
Meck
Bigeeg
Ning
Ebye
Station
Kwadjelin
Enubuj
Süd Passage
Ennalubegan
Gehh
Illeginni
Ellep
Legan
Passage
Tengelin
Jabbenoh
Boggenatjen
Allin Jappel
TAONGI
3
Sterne v. Scylla
flach mit zahlreichen Untiefen
9
73
13
60
38
18
Boots-Passage
Sibylla
1
hoher Sand
Trockenes Riff
WOTJE
4
Wotje
oder
Otdia
15
3
8
27
17
30
27
14
20
13
24
30
36
5
3
12
PINGELAP
5
Tugulu I.
Takai
Pingelap I.
(Inhabited)

PLATE 228.

PLATE 228.

1. Wotje, German Hydrog., No. 113 ; scale six miles to the inch.
2. Jaluit, Southeast Pass, corrected by officers of the "Albatross," scale one-half mile to the inch.
3. Likieb, corrected by officers of the "Albatross," scale nine miles to the inch.
4. Arhno, corrected by officers of the "Albatross," scale five miles to the inch. An excellent sketch of Arhno has just been published by the German Hydrographic Bureau (1902).

2–4 from German Hydrog. Bureau, No. 113.

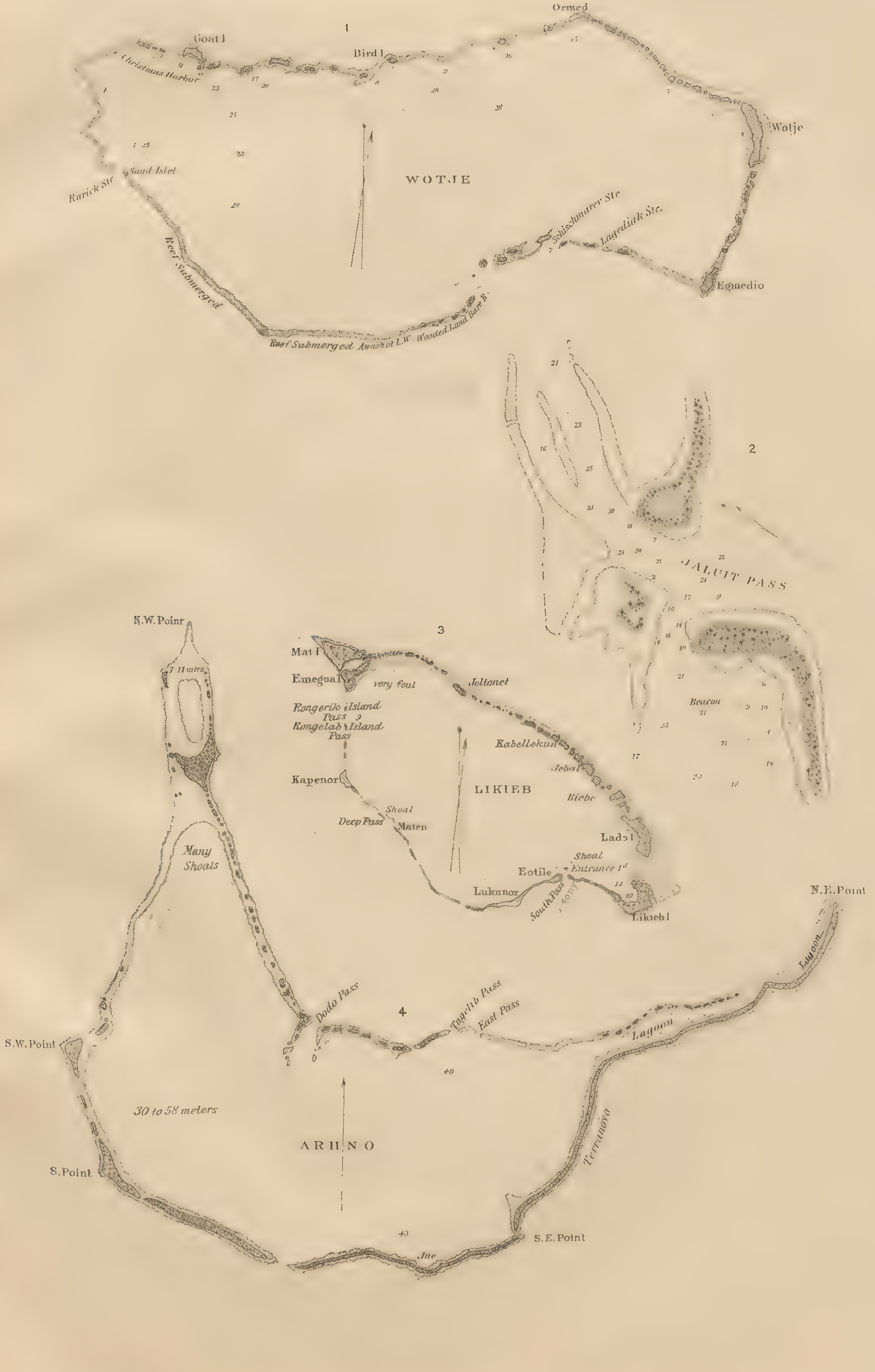

1
Ormed
Goat I
Bird I
Christmas Harbor
Sand Islet
Rurick Str
WOTJE
Wotje
Schischmarev Str
Lazediak Str.
Egmedio
Reef Submerged
Reef Submerged Awash at L.W. Wooded Land Bare R.
9
23
17
20
8
9
28
16
15
7
25
26
28
25
7
2
21
23
16
25
23
30
18
7
25
20
21
22
24
JALUIT PASS
17
9
10
14
16
10
21
6
Beacon
21
9
10
23
4
21
17
18
20
18
3
Mat I
Emegual
very foul
Jeltonet
Rongerik Island Pass 9
Rongelab Island Pass
Kabellekun
Jebat
Kapenor
LIKIEB
Biebe
Shoal
Deep Pass
Maten
Lado I
Shoal
Entrance Id
Eotile
Lukunor
South Pass
12
10
Likieb I
N.W. Point
7 11 mtrs.
Many Shoals
N.E. Point
Lagoon
4
Dodo Pass
Tagelib Pass
East Pass
Lagoon
S.W. Point
40
30 to 58 meters
ARHNO
Terrauora
S. Point
43
Ine
S.E. Point

PLATE **229**.

PLATE 229.

Kusaie, or Ualan, Carolines, from A. Chart 878, scale one and one-fourth miles to the inch.

KUSAIE OR UALAN

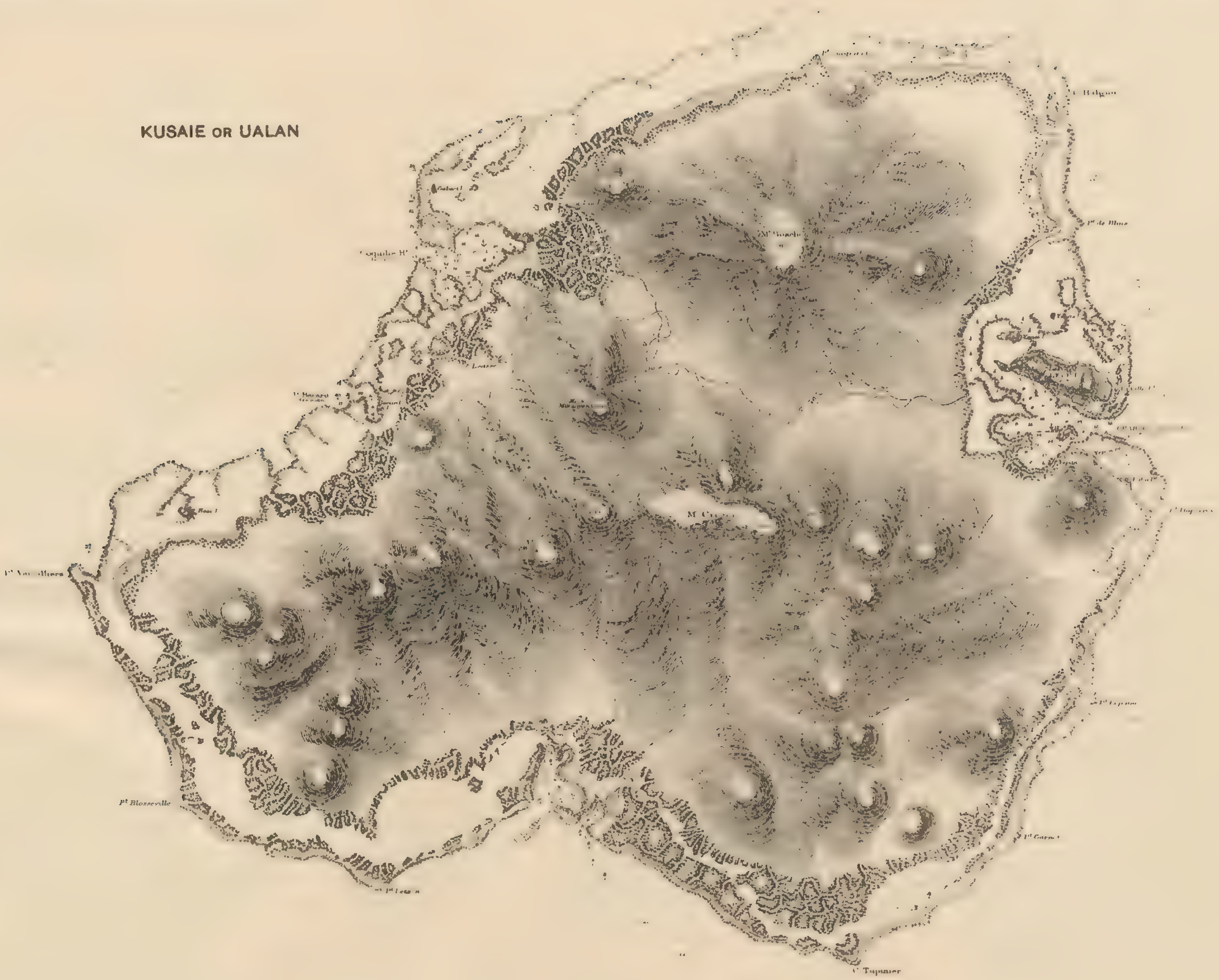
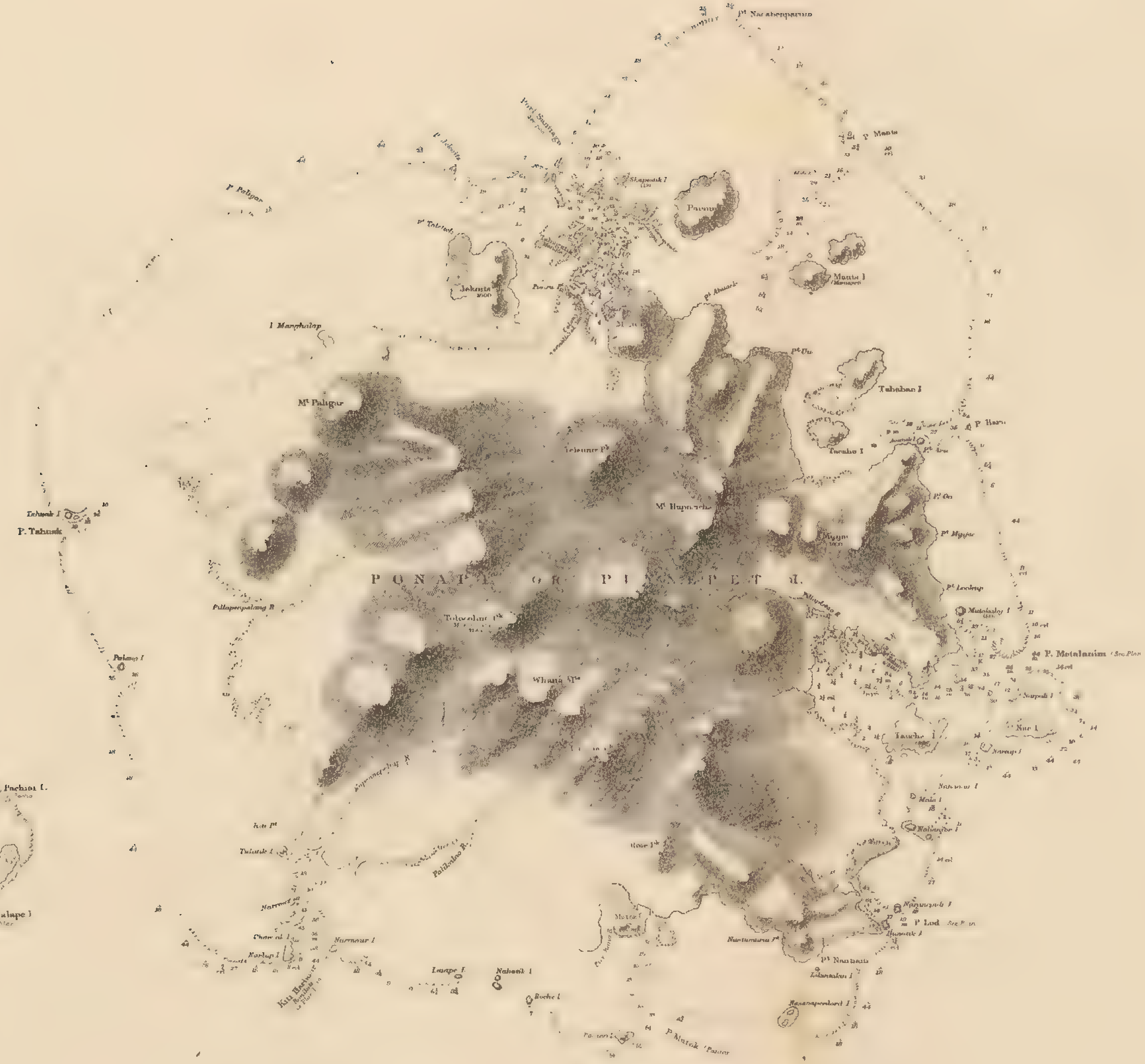


PLATE 230.

PLATE 230.

Ponapi and the Andema Islands, from A. Chart 981, scale four and one-fourth miles to the inch.

PONAPI


PONAPI OR PUNIPET I.
Mt Paligur
I Manghalap
P. Palgar
Jakoits
Pavnu
Manta I
P. Manta
Tahaban I
Pt Ou
Pt Mypye
Pt Leedup
Metalaby I
P. Metalanim
Naar I
Tauak I
P. Lod
Pt Nanbaiu
Mt Hupwnh
Whane Mt
Tolocolme Pk
P. Tahuak
Tahuak I
Pallapeopalang B
Palang I
Tulunik I
Narrrnur I
Lange I
Nahenk I
Roche I
Kiti Harbor
P. Kiti
P. Naraberparnu

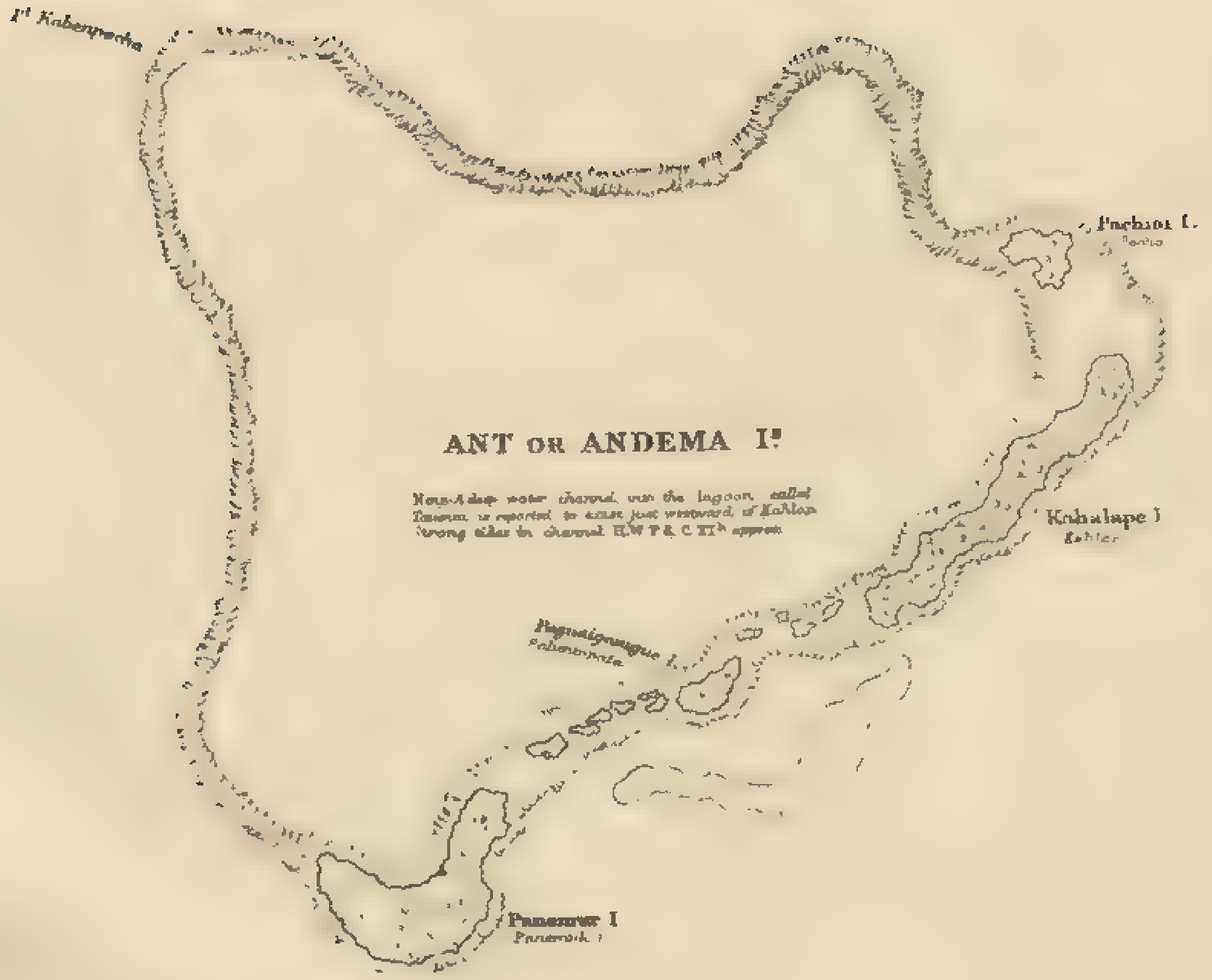
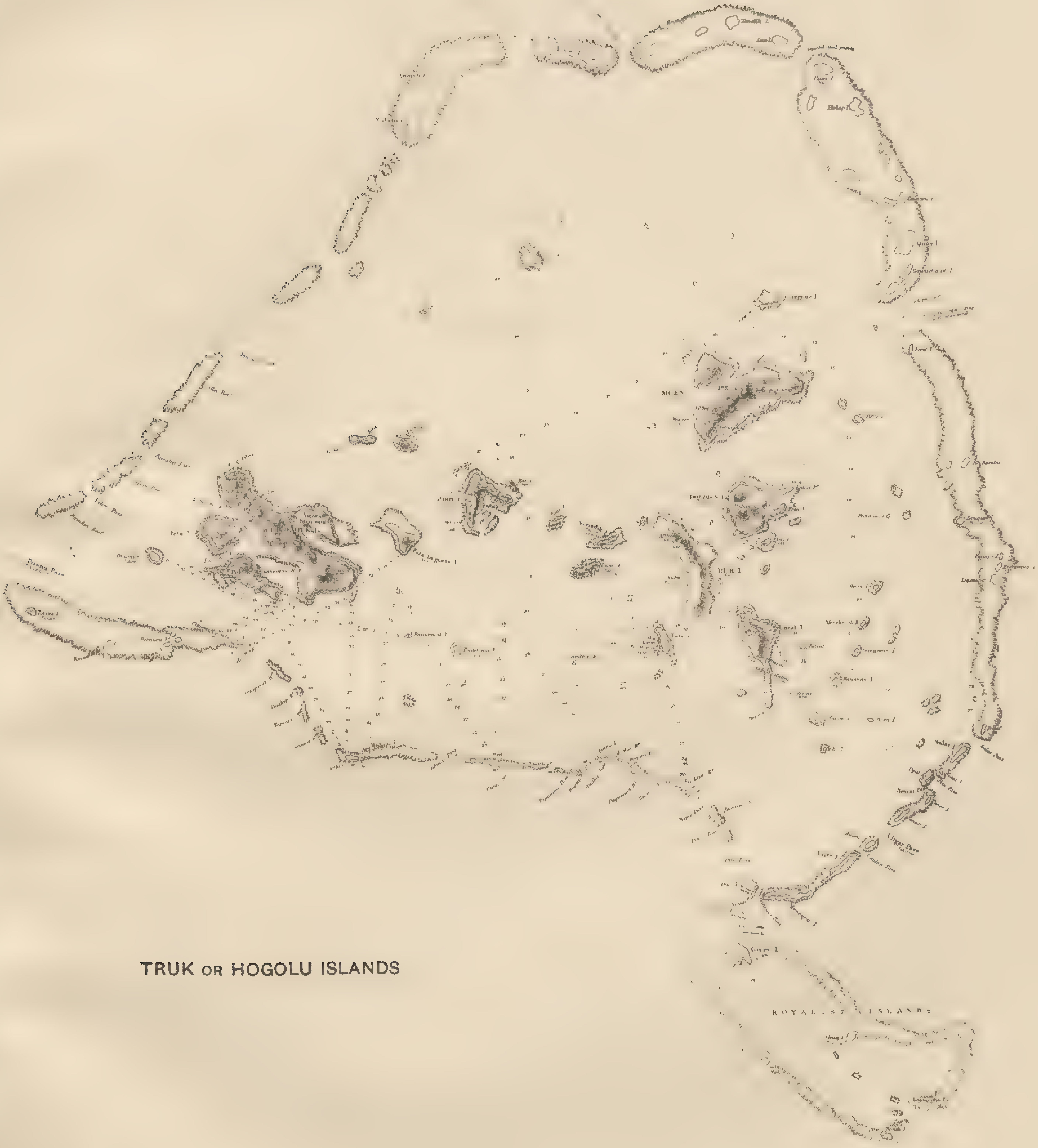

ANT OR ANDEMA Is
Note.—A deep water channel into the lagoon, called Tauaran, is reported to exist just westward of Kahlap. Strong tides in channel. H.W.F.&C. XIh approx.
Pt Kabenparha
Pachiai I.
Kahalape I
Pagasatigamague I.
Panamur I

PLATE 231

PLATE 231.

Truk and the Royalist Islands, from A. Chart 982, scale seven miles to the inch.



TRUK OR HOGOLU ISLANDS

PLATE 232.

PLATE 232.

Track of the "Albatross" west of Ponapi, through Truk to Guam.

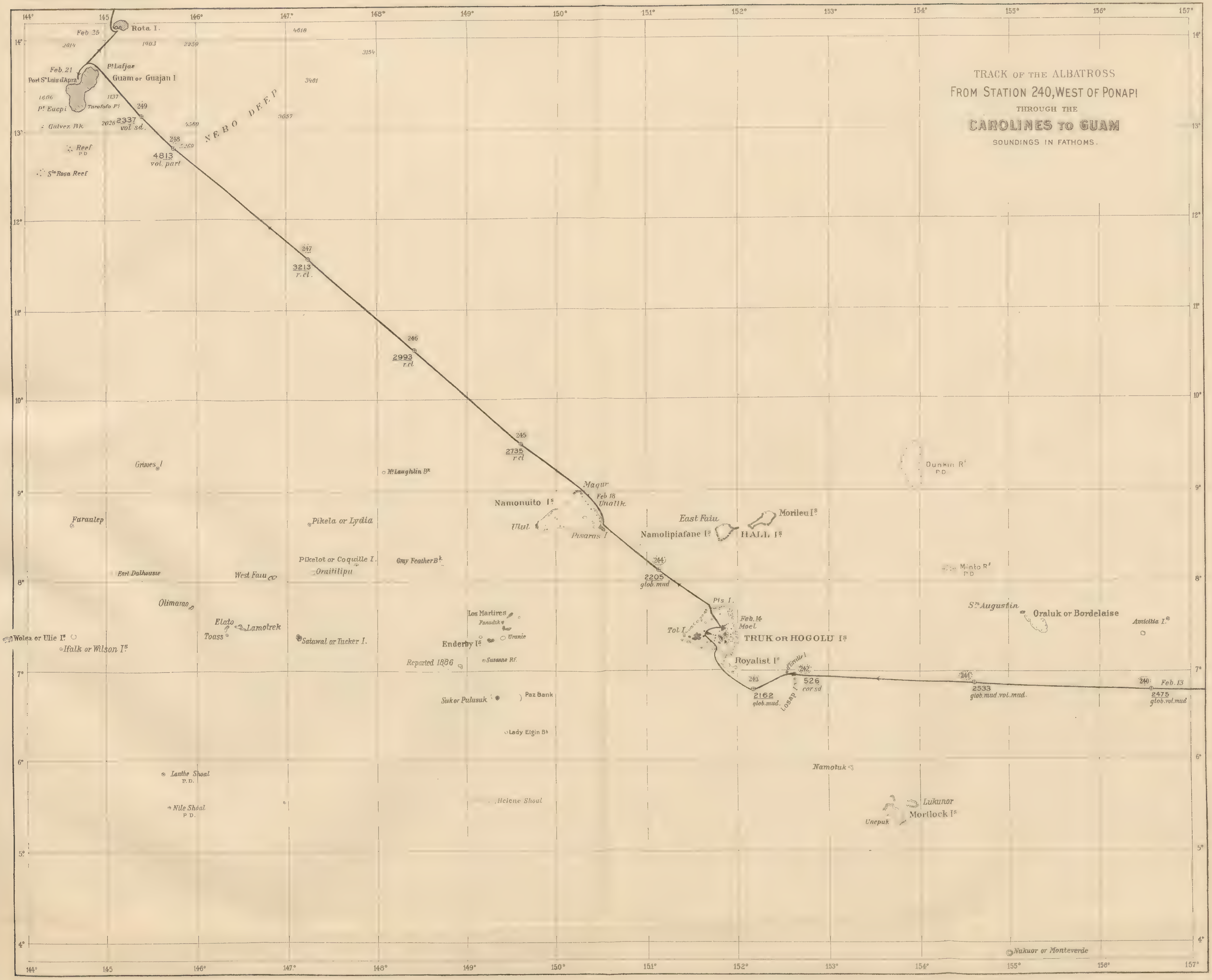

TRACK OF THE ALBATROSS
FROM STATION 240, WEST OF PONAPI
THROUGH THE
CAROLINES TO GUAM
SOUNDINGS IN FATHOMS.
144° 145 146° 147° 148° 149° 150° 151° 152° 153° 154° 155° 156° 157°
14° 13° 12° 11° 10° 9° 8° 7° 6° 5° 4°
Rota I.
Feb. 25
Feb. 21
Port St. Luis d'Apra
Pt. Lafjae
Guam or Guajan I.
Pt. Eucpi
Tarafofo Pt.
Galvez Bk.
Reef P.D.
Sta. Rosa Reef
NERO DEEP
249
2337 vol. sd.
248
4813 vol. part
247
3213 r. cl.
246
2993 r. cl.
245
2735 r. cl.
Magur
Feb. 18
Unalik
Namonuito Is.
Ulul
Pisaras I.
East Faiu
Morileu Is.
Namolipiafane Is.
HALL Is.
244
2205 glob. mud
Pis I.
Feb. 14
Moel
Tol I.
TRUK OR HOGOLU Is.
Royalist Is.
243
2162 glob. mud.
242
526 cor. sd.
Losap I.
241
2533 glob. mud. vol. mud.
240
Feb. 13
2475 glob. vol. mud.
Dunkin Rf. P.D.
Mento Rf. P.D.
St. Augustin
Oraluk or Bordelaise
Amicitia I.
Namoluk
Lukunor
Mortlock Is.
Unepuk
Nukuor or Monteverde
Grimes I.
Faraulep
Earl Dalhousie
West Faiu
Olimarao
Elato
Lamotrek
Toass
Woleai or Ulie Is.
Ifalk or Wilson Is.
McLaughlin Bk.
Pikela or Lydia
Pikelot or Coquille I.
Oraitilipu
Gray Feather Bk.
Satawal or Tucker I.
Los Martires
Panadik
Uranie
Enderby Is.
Susanne Rf.
Reported 1886
Sukor Pulusuk
Paz Bank
Lady Elgin Bk.
Lanthe Shoal P.D.
Nile Shoal P.D.
Helene Shoal

PLATE 233.

PLATE 233.

1. Namonuito, from A. Chart 772, scale twelve miles to the inch.
2. Feys, or Tromelin Island, from A. Chart 772, scale three fourths of a mile to the inch.
3. Losap, from A. Chart 982, scale two miles to the inch.
4. Guam, from A. Chart 1748, scale six miles to the inch.
5. Rota, from A. Chart 1748, scale three miles to the inch.

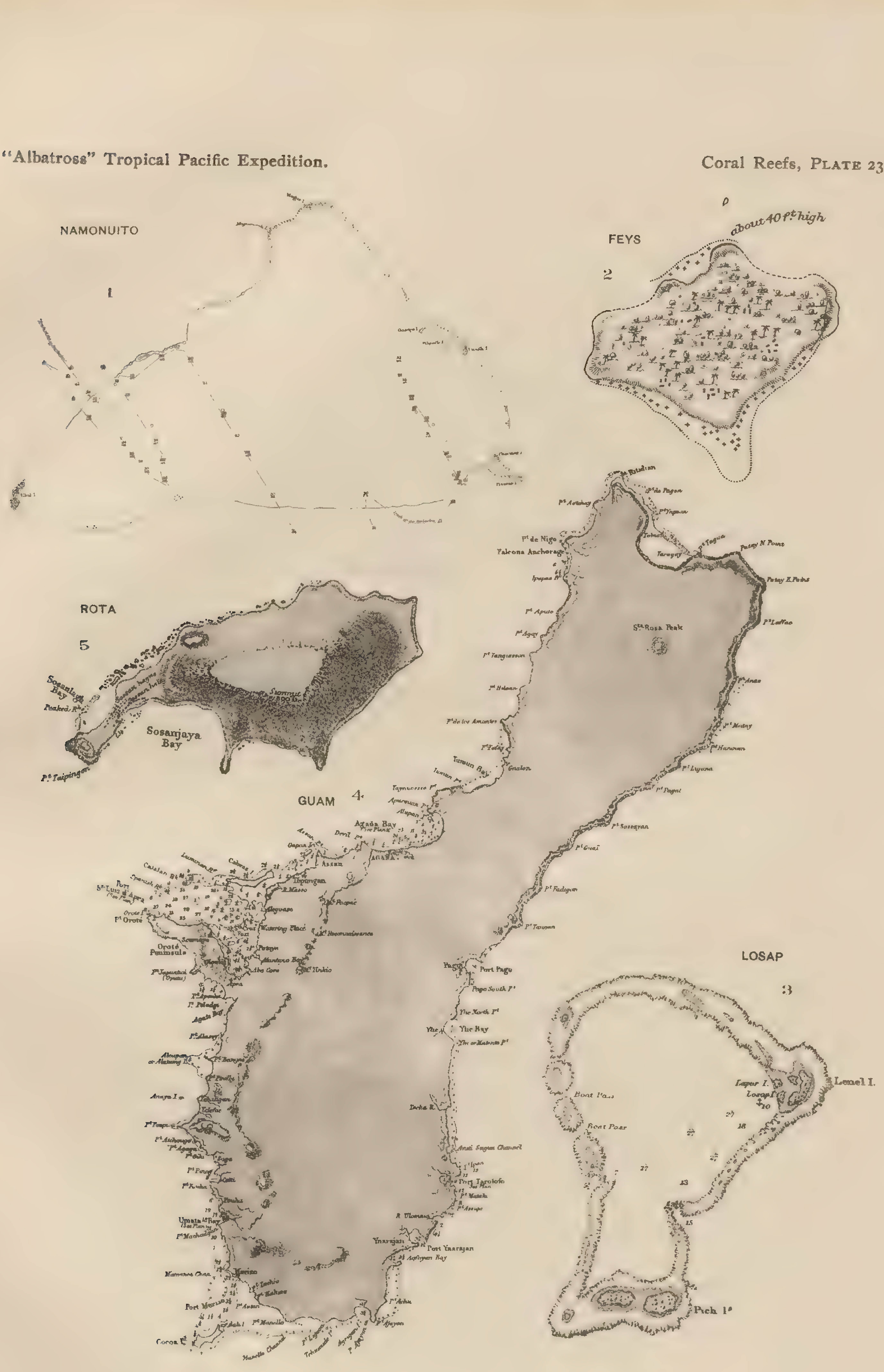

NAMONUITO
1
FEYS
2
about 40 ft. high
ROTA
5
Sosanlaga Bay
Peaked Rk.
Sosanjaya Bay
Summit 1500 ft.
Pt. Taipingan
GUAM
4
Rt. Ritidian
Pt. de Pagon
Pt. Ynapsan
Pt. Achobay
Pt. de Nigo
Falcona Anchorage
Tomoo
Taragay
Pt. Tagua
Patay N. Point
Patay E. Point
Ipapao Pt.
Pt. Aputo
Pt. Agag
Sta Rosa Peak
Pt. Lafiao
Pt. Tangisson
Pt. Haloan
Pt. Anao
Pt. de los Amantes
Pt. Motay
Pt. Tefay
Pt. Hanonan
Tumun Bay
Gnaton
Pt. Luyuna
Tumun Pt.
Taynucsse Pt.
Pt. Pagat
Amerecan Pt.
Alupan
Agaña Bay (See Plan)
Pt. Sassayan
Devil Pt.
Asan Pt.
Gapan Is.
AGAÑA
Pt. Guaï
Asaan
Luminan Rf.
Cabras I.
Catalan Bk.
Tepungan
Spanish Rk.
Port St. Luis d'Apra (See Plan)
R. Masso
Pt. Fadigon
Mt. Paopac
Orote I.
Pt. Orote
Aleguaso
Watering Place
Fort
Mt. Reconnaissance
Pt. Taunan
Orote Peninsula
Sumay
Pt. Piti
Mantanno Bay
Pago
Port Pago
Abo Cove
Mt. Tinkio
Pt. Jagontui (Orote)
Apra
Pago South Pt.
Pt. Apente
Pt. Paladge
Agate Bay
Yle North Pt.
Yle
Yle Bay
Yle or Malonte Pt.
Pt. Alaray
Alupan or Alutung Is.
Pt. Barnyas
Pt. Pinillo
Anaya I.
Tenaligan
Telefac
Dacha R.
Pt. Taopa
Pt. Aichonge
Pt. Agagan
Pt. Gido
Anati Sagua Channel
Pt. Ipan
Pt. Pinog
Cetti
Port Tarofofo (See Plan)
Pt. Kroho
Pt. Matalu
Pt. Assupa
R. Ulomasa
Umata Bay (See Plan)
Pt. Machaida
Ynarajan
Port Ynarajan
Achnyan Bay
Mamanaa Chan.
Merizo
Pt. Inchio
Kalona
Pt. Achu
Port Merizo
Pt. Auton
Pt. Manello
Pt. Ajayan
Cocos I.
Manello Channel
Pt. Lujuna
Tchunade Pt.
Ayragua Pt.
P. Ajayan
LOSAP
3
Boat Pass
Lapur I.
Losap I.
Lenel I.
Pich I.

PLATE 234.

PLATE 234.

Geological Chart of the islands in the tropical Pacific:

Yellow, coral reefs, underlying base not known.

Blue, volcanic islands.

Carmine, elevated limestones.

Blue and carmine, volcanic islands surrounded by reefs, partly elevated.

Green, coral reefs, probably underlaid by rocks of nearest land.

Blue and yellow, volcanic islands surrounded by encircling reefs.

Track of the Albatross
Elevated Limestones 🟥
Volcanic Islands
Volcanic Islands surrounded by Reefs, partly Limestone
Coral Reefs base not known 🟨
Coral Reefs probably underlaid by rocks of nearest land
Volcanic Islands surrounded by encircling Reefs.
140°
160°
180°
160°
140°
120°
20°
0°
20°
JAPAN IS.
Yokohama
Hachijo
Bayonnaise I
Lots Wife
Rosario I.
BONIN IS
Forfana I
Volcano Is
St. Augustino
Farallon de Pajaros
Assumption I
Agrigan I
Pagan I
Alamagan I
Guguan I
Sariguan I
Saipan I
Tinian I
Rota I
Guam or Guajan I
MARIANA OR LADRONE ISLANDS
Alligator Shl
Wakes Is
Morell I
Byer
Cure I
Midway Is
Pearl Rf.
Lisiansky I
Laysan I
Gardner I
Two Brothers Rf.
French Frigate Sh.
Necker I
Bird I
Niihau
Kauai I
Oahu I
Molokai I
Maui
Hawaii
HAWAIIAN ISLANDS
Johnston I
Reed or Redfield Rks
San Francisco
Santa Cruz
Pt. Pinos
Aug. 26.
Aug. 31.
Sept. 7
Gaspar Rico
Eniwetok
Bikini Is
Rongerlaps
Bikar
Utirik
Likieb
Mejit
Wotje
RATACK CHAIN
MARSHALL ISLANDS
RALICK CHAIN
Ujelang
Menschikov
Kwajalon
Elmore
Jaluit
Arhno
Mulgrave
Ebon
Cluthi or Mackenzie Is
Feys
Yap
Ngoli
Sorol Is
Palao or Pelew Is
Angaur
Namonuito Is
Hall Is
Truk
Oraluk
Senjavina Is
Ponapi
Mokil
Pingelap
Kusaie
Wolea
Martires
Enderby Is
Losap
Namoluk Is
Mortlocks
CAROLINE ISLANDS
Matador
Greenwich I
Taritari
Apaiang
Maraki
Maiana
Kuria
Apamama
Nonuti
Taputeuea
Nukunau
Onoatoa
Tamana
Arorai
GILBERT IS
Nauru
Paanopa
Howland I
Nantucket I
Kingman Sh.
Palmyra I
Washington or New York I
Fanning I
Christmas I
Jarvis I
LINE ISLANDS
Malden I
Starbuck I
PHŒNIX ISLANDS
Canton I
Enderbury I
Birney I
Phœnix I
McKean I.
Sydney I
Gardner I
Hull I
Admiralty Is
St. Matthias
New Hanover
New Mecklenburg
BISMARCK ARCHIPELAGO
New Pomerania
PAPUA OR NEW GUINEA
G. of Papua
LOUISIADE ARCHIPELAGO
Lord Howe Is
Ongtong Java Is
Bougainville I
Choiseul I
SOLOMON IS
Malaita
S. Cristobal
Guadalcanar
Rennell I
STA CRUZ IS
Sta. Cruz I
Vanikoro
CORAL SEA
C. Flattery
Libou Rf
Torres Is
Banks Is
Espiritu Santo I
Aurora
Mallicolo
Pentecost
Api
Sandwich I
Erromanga
Tanna
Erronan
Aneityum
NEW HEBRIDES
LOYALTY IS
N. CALEDONIA
Penguin Bk
Pandora
Nanomea
Nui
ELLICE IS
Nukufetau
Funafuti
Nukulailai
Nurakita
Rotumah I
Uea
Horne Is
FIJI ISLANDS
Vanua Levu
Kandavu
Eastern Group
Lau
Vatoa
Ono i Lau Is
Tuvana i Tholo
Ninafou
Fanualai
Vavau
Lette
Tofoa
Hapai Group
Namuka Group
Falcon I
TONGA OR FRIENDLY IS
Tongatabu
SAMOAN OR NAVIGATOR IS
Savaii I
Upolu I
Tutuila I
Manua Is
Rose I
Tafahi
Niuatobutabu (keppel I)
Atafu
Nukunono
Fakaofu
UNION GROUP
Gente Hermosa I (Swain)
Danger Is
Nassau I
Suvarov Is
Niue (Savage I)
Palmerston Is
Aitutaki
COOK ISLANDS
Takutea
Mitiero
Atiu
Mauki
Rarotonga
Mangaia
Victoria I
Penrhyn
Rakahanga
Manahiki (Humphrey I)
Vostok I
Caroline Atoll
Flint I
MARQUESAS IS
Hatutu
Coral Is
Nukuhiva
Uahuka
Hivaoa
Fatuhiva
SOCIETY ISLANDS
Bellingshausen
Mopeha
Bora Bora
Raiatea
Tetiaroa
Tahiti
Mehetia
Makatea
TUAMOTU OR PAUMOTU IS OR LOW ARCHIPELAGO
Disappointment Is
Puka Puka
Fakaina
Hereheretue
Duke of Gloucester Is
Nukulipipi
Amanu
Hao
Nukutavake
Pinaki
Clermont Tonnerre
Tureia
Acteon
S. Marutea
Moerenhout
Pangaiaufa
Morane
Pearl
Mangareva Is
Timoe
Oeno
Henderson
Ducie
Pitcairn

PLATE 235.

PLATE 235.

Bora Bora. Drawn by J. H. Emerton, from sketches by A. Agassiz and A. G. Mayer.

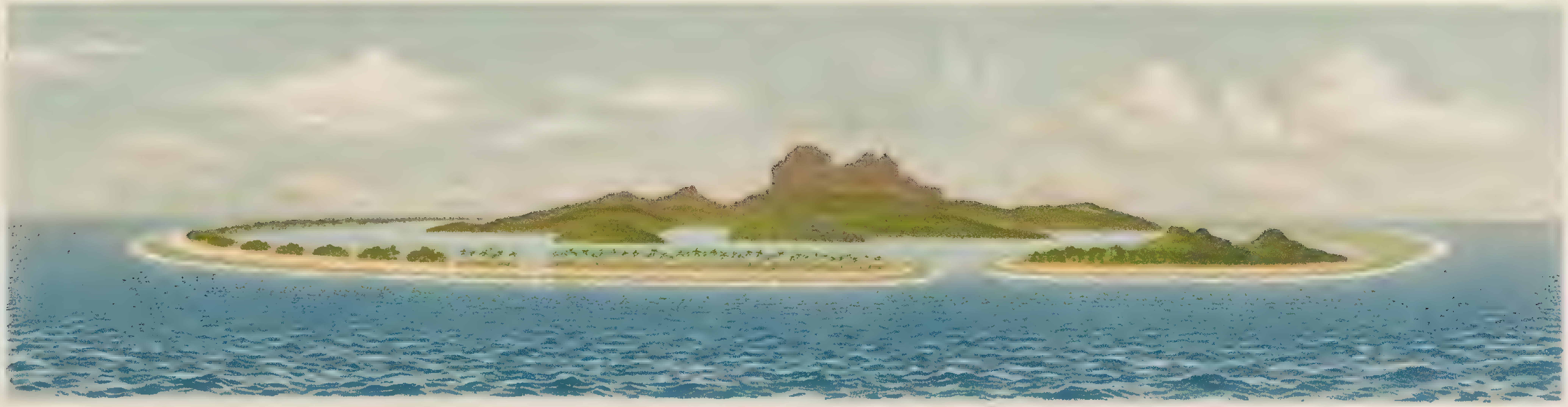
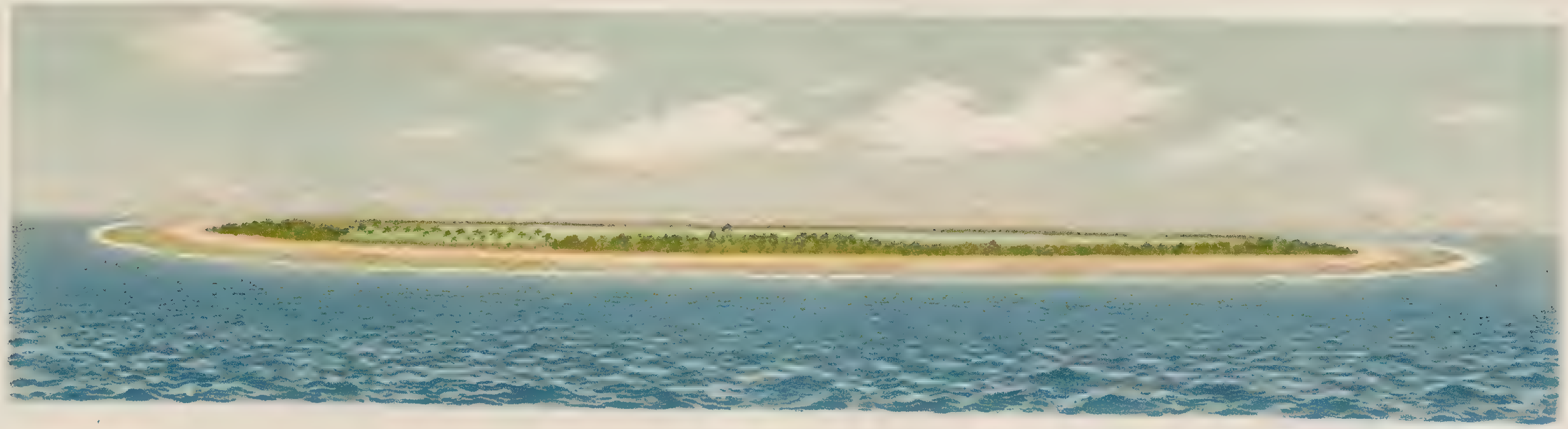


PLATE **236**.

PLATE 236.

Pinaki (Whitsunday). Drawn by J. H. Emerton, from sketches by A. Agassiz and A. G. Mayer.



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